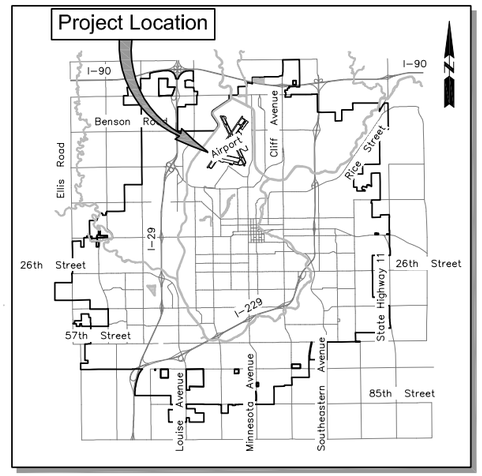
LOCATION MAP

CONSTRUCTION PLANS
FOR

SIOUX FALLS REGIONAL AIRPORT

SIOUX FALLS, MINNEHAHA COUNTY, SOUTH DAKOTA



VICINITY MAP

March 2011

AIP NO. 3-46-0050-042-2011

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
PREPARED BY: GOLDSMITH HECK ENGINEERS, INC.
GENERAL CONTRACTOR: ASPHALT SURFACING COMPANY
CONSTRUCTED: APRIL-NOVEMBER 2011

INDEX OF SHEETS

RECONSTRUCT TERMINAL PARKING, ACCESS IMPROVEMENTS & MISCELLANEOUS ITEMS

ENGINEER CERTIFICATION

I HEREBY CERTIFY THAT TO THE BEST OF MY PROFESSIONAL ABILITY THESE PLANS AND SPECIFICATIONS WERE DEVELOPED UNDER MY DIRECT SUPERVISION IN ACCORDANCE WITH ALL APPLICABLE FEDERAL STANDARDS AND REQUIREMENTS, AND THAT NO DEVIATION FROM OR MODIFICATIONS TO STANDARDS AS SET FORTH IN THE FEDERAL AVIATION ADMINISTRATION ADVISORY CIRCULARS WILL BE NECESSARY OTHER THAN THOSE PREVIOUSLY APPROVED BY THE FAA.

MARK D. WIEDERRICH, PE/LS S.D. NO. 5168 DATE

SPONSOR APPROVAL

I HEREBY APPROVE THESE PROJECT PLANS AND SPECIFICATIONS, CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER THAT THEY HAVE BEEN DEVELOPED TO THE BEST OF HIS PROFESSIONAL ABILITY IN ACCORDANCE WITH FEDERALSTANDARDS AS SET FORTH IN THE FAA ADVISORY CIRCULARS AND THAT NO DEVIATIONS WILL BE NECESSARY OTHER THAN THOSE PREVIOUSLY APPROVED BY THE FAA.

SIOUX FALL REGIONAL AIRPORT AUTHORITY

DAN LETELLIER, EXECUTIVE DIRECTOR DATE

ACCEPTED

SOUTH DAKOTA DEPARTMENT OF TRANSPORTATION

BRUCE LINDHOLM, P.E.
PROGRAM MANAGER
OFFICE OF AERONAUTICS DATE

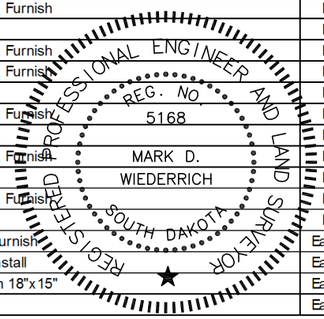
NOTE: ALL SHEETS IN THIS AS-BUILT PLAN SET HAVE NOT BEEN UPDATED. ONLY SHEETS WITH THE AS-BUILT STAMP HAVE BEEN UPDATED TO REFLECT SIGNIFICANT CHANGES DURING CONSTRUCTION.

Plans By:

GOLDSMITH HECK
ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

BID SCHEDULE 1 (AIRPORT FUNDED)

ITEM NO.	STD BID ITEM	ITEM DESCRIPTION	UNIT	APPROX. QUANT.
	GRADING			
1	9.0010	Mobilization	LS	1
2	100.0020	Clear and Grub Tree	Each	18
3	100.0100	Clearing	LS	1
4	110.0400	Remove Drop Inlet	Each	8
5	110.0500	Remove Pipe Culvert	Ft	872
6	110.0600	Remove Fence	Ft	998
7	Special	Remove Overhead Gate Assembly & Equip	LS	1
8	Special	Remove Exit Plaza Booth	Each	2
9	Special	Remove Entrance & Exit Lane Equipment	LS	1
10	Special	Remove Exit Plaza Canopy	LS	1
11	Special	Remove Exit Plaza Canopy Footings	Each	8
12	110.1010	Remove Asphalt Concrete Pavement	SqYd	45,123
13	110.1100	Remove Concrete Pavement	SqYd	2,245
14	110.1140	Remove Concrete Sidew alk	SqYd	263
15	110.1540	Remove Luminaire Pole Footing	Each	15
16	Special	Remove Barrier Concrete Posts	Each	111
17	Special	Remove Parking Meters	Each	10
18	Special	Remove Bollard	Each	45
19	Special	Remove Electric Junction Box	Each	4
20	110.8100	Saw Existing Asphalt	Ft	3,919
21	110.8110	Saw Existing PCC Concrete	Ft	46
22	120.0010	Unclassified Excavation	CuYd	20,896
23	120.0100	Unclassified Excavation, Digouts	CuYd	100
24	120.0480	Scarify and Recompact Subgrade	SqYd	56,343
25	120.6000	Water For Dust Control	MGal	100
26	120.6100	Water For Embankment	MGal	358
27	230.0010	Placing Topsoil	CuYd	3,081
28	230.0300	Salvage Topsoil	CuYd	3,081
29	380.9010	Temporary Gravel Crossing	Each	3
30	735.5050	Transplant Tree	Each	44
31	950.5700	Locating Utility	Each	5
32	950.5710	Verify Utility	Each	2
	TRAFFIC CONTROL			
33	634.0100	Traffic Control	Unit	790
34	Special	Traffic Control, Special Signs	Unit	118
35	634.0120	Traffic Control, Miscellaneous	LS	1
36	634.0420	Type C Advance Warning Arrow Panel	Each	2
37	Special	Safety Fence	L.Ft	3,843
	EROSION CONTROL			
38	Special	Drainage Fabric	SqYd	103
39	700.0110	Class B Riprap	Ton	193
40	Special	BMP Forebay Check Dam Rock	Ton	47
41	734.0105	Erosion Control Blanket	SqYd	2,261
42	734.0135	Turf Reinforcement Mat	SqYd	170
43	734.0850	Inlet Protection	Each	35
44	734.5010	Sw eeping	Hour	20
45	734.6001	Temporary Vehicle Tracking Control	Each	5
46	734.6006	Concrete Washout Facility	Each	4
47	Special	Temporary Sediment Basin	Each	2
	STORM SEWER			
48	450.0105	12" RCP Class 5, Furnish	Ft	369
49	450.0110	12" RCP, Install	Ft	369
50	450.0114	15" RCP Class 4, Furnish	Ft	180
51	450.0120	15" RCP, Install	Ft	180
52	450.0123	18" RCP Class 3, Furnish	Ft	507
53	450.0125	18" RCP Class 5, Furnish	Ft	188
54	450.0130	18" RCP, Install	Ft	695
55	450.0143	24" RCP Class 3, Furnish	Ft	505
56	450.0150	24" RCP, Install	Ft	505
57	450.0163	30" RCP Class 3, Furnish	Ft	134
58	450.0170	30" RCP, Install	Ft	134
59	450.0183	36" RCP Class 3, Furnish	Ft	568
60	450.0190	36" RCP, Install	Ft	568
61	450.0408	18" RCP Bend, Furnish	Each	1
62	450.0409	18" RCP Bend, Install	Each	1
63	450.0700	RCP Tee, Furnish 18"x15"	Each	1
64	450.0701	RCP Tee, Install	Each	1



ITEM NO.	STD BID ITEM	ITEM DESCRIPTION	UNIT	APPROX. QUANT.
65	450.2024	30" RCP Flared End, Furnish	Each	1
66	450.2025	30" RCP Flared End, Install	Each	1
67	450.2028	36" RCP Flared End, Furnish	Each	1
68	450.2029	36" RCP Flared End, Install	Each	1
69	Special	Connect to Existing Storm Structure	Each	3
70	Special	Connect to Existing Storm Pipe	Each	1
71	462.0100	Class M6 Concrete	CuYd	32.2
72	480.0100	Reinforcing Steel	Lb	3,704
73	Special	BMP Outlet Control Structure - South Pond	LS	1
74	Special	BMP Outlet Control Structure - North Pond	LS	1
75	Special	Salvage & Reset Area Inlet Frame & Grate	Each	1
76	670.1200	Type B Frame and Grate Assembly	Each	3
77	670.5200	Special Frame & Grate (R-3541 w / L Grate or equal)	Each	1
78	671.6100	Type Y Manhole Frame and Lid	Each	7
79	950.5300	Manhole Frame and Cover, 7"	Each	6
80	Special	Storm Structure Adjustment	Each	3
81	Special	Storm Frame & Grate Adjustment	Each	3
	SANITARY SEWER			
82	950.3401	6" Sew er Cleanout Assembly	Each	1
83	950.4801	6" Boots For Manhole	Each	1
84	950.4951	6" Sanitary Sew er Service	Ft	75
85	Special	Precast 1300 Gallon Sanitary Sew er Holding Tank	Each	1
	WATER			
86	Special	1" Copper Water Service, F&I	Ft	15
	SURFACING			
87	120.6200	Water For Granular Material	MGal	283
88	260.1010	Base Course	Ton	28,330
89	320.1200	Asphalt Concrete Composite	Ton	14,137
90	320.1250	Asphalt Concrete For Patching	Ton	23
91	380.0010	6" Nonreinforced PCC Pavement	SqYd	1,463
92	380.4010	6" PCC Fillet Section	SqYd	259
93	650.7000	Concrete Curb & Gutter Type SF66	Ft	9,377
94	Special	PCC Pavement 6", Median Noses	SqYd	21
95	651.0050	5" Concrete Sidew alk	SqFt	14,478
96	651.6010	Detectable Warning Surface	SqFt	64
97	Special	Concrete Island Pavement, 6"	SqFt	713
98	Special	Bollards, 4"	Each	35
99	Special	Bollard/Chain Gate Assembly	Each	4
100	831.0050	Geotextile Fabric For Subgrade Stabilization	SqYd	7,871
101	950.5000	Adjust Manhole	Each	4
	LIGHTING & POWER			
102	110.1540	Remove Luminaire Pole Footing	Each	19
103	Special	Breakaw ay Base Luminaire Pole w ith Arm, 30' Mounting Height	Each	2
104	Special	Fixed Base Luminaire Pole w ith Arm, 35' Mounting Height	Each	5
105	Special	Roadw ay Luminaire, 250 Watt	Each	2
106	Special	Roadw ay Luminaire, 400 Watt	Each	3
107	Special	Roadw ay Luminaire, 1000 Watt	Each	8
108	Special	Floodlight Luminaire, 100 Watt	Each	8
109	Special	Floodlight Luminaire, 250 Watt	Each	2
110	635.8113	1" Rigid Conduit, Schedule 40	Ft	7,366
111	635.8115	1.5" Rigid Conduit, Schedule 40	Ft	5,323
112	635.8120	2" Rigid Conduit, Schedule 40	Ft	3,046
113	635.5020	2' Diameter Footing	Ft	197
114	Special	Type 1 Electrical Junction Box	Each	4
115	Special	Type 2 Electrical Junction Box	Each	3
116	Special	Type 4 Electrical Junction Box	Each	3
117	635.5530	Preformed Loop Detector	Each	22
118	Special	Remove and Reset Luminaire Pole	Each	19
119	Special	1/C #2 AWG Copper Wire	Ft	7,988
120	635.9016	1/C #6 AWG Copper Wire	Ft	21,043
121	635.9018	1/C #8 AWG Copper Wire	Ft	15,954
122	635.9020	1/C #10 AWG Copper Wire	Ft	7,154
123	Special	Remove Junction Box	Each	3
124	Special	Fixed Base Light Bollards, 3' Height	Each	34
125	Special	Feed Point Modificatoin	LS	1
126	Special	Panel Board Modification	LS	1
127	Special	Utility Electrical Service	LS	1
128	Special	Temporary Lighting	LS	1
129	Special	Well Pump Connection	LS	1

ITEM NO.	STD BID ITEM	ITEM DESCRIPTION	UNIT	APPROX. QUANT.
	PAVEMENT MARKINGS & PERMANENT SIGNS			
130	633.1400	Pavement Marking Paint, 4" White	Ft	137
131	633.1405	Pavement Marking Paint, 4" Yellow	Ft	44,087
132	633.1430	Pavement Marking Paint, 24" White	Ft	77
133	Special	Wheelchair Symbol, White Paint	Each	29
134	Special	Remove Traffic Sign	Each	120
135	110.5021	Salvage Traffic Sign for Reset	Each	4
136	632.1320	2.0"x2.0" Perforated Tube Post	Ft	307
137	632.1330	2.25"x2.25" Perforated Tube Post	Ft	140
138	632.1340	2.5"x2.5" Perforated Tube Post	Ft	60
139	Special	Furnish Sheet Aluminum Sign w ith Reflective Sheeting	SqFt	93
140	632.3060	Install Traffic Sign on Post	Each	86.0
141	632.3065	Install Traffic Sign on Street Light	Each	4.0
142	Special	Cantilever Sign Structure	LS	1.0
	MEDIAN LANDSCAPING & IRRIGATION			
143	120.6300	Water For Vegetation (shrubs and spaded trees)	MGal	50
144	Special	Soil Preparation, Till & Fine Grade for Lawn and Landscape	MSf	295
145	730.0251	Special Permanent Seed Mixture	LB	1,970
146	731.0100	Fertilizing	LB	1,468
147	732.0200	Fiber Mulching	Ton	5
148	733.0100	Sodding	SqYd	2,833
149	Special	3 Gallon Deciduous Shrub, Furnish and Plant	Each	1,250
150	Special	5 Gallon Deciduous Shrub, Furnish and Plant	Each	94
151	Special	5 Gallon Coniferous Shrub, Furnish and Plant	Each	32
152	735.1370	7' Coniferous Evergreen, Furnish and Plant	Each	37
153	735.2060	6' to 8' Tree, Furnish and Plant	Each	49
154	735.2220	2" Caliper Deciduous Tree, Furnish and Plant	Each	3
155	735.2225	2.5" Caliper Deciduous Tree, Furnish and Plant	Each	62
156	735.0110	1 Gallon Perennial Plant, Furnish and Plant	Each	2,814
157	735.5010	1 Gallon Ornamental Grass, Furnish and Plant	Each	1,359
158	900.5152	Weed Barrier Fabric	SqYd	6,405
159	999.5156	3" Depth Shredded Bark Mulch	SqYd	6,230
160	Special	Quartzite Edging	SqYd	173
161	Special	Landscape Edging- Polyethylene	LF	1,986
162	Special	Landscape Edging- Metal	LF	255
163	Special	Spray Turf w ith Non-selective Herbicide	SqYd	13,782
164	Special	Pre-Emergent Herbicide	SqYd	6,405
165	Special	Well, Pump, and Controls	Each	1
166	Special	Irrigation Controller, 2 Wire Decoder Module, & Accessories	Each	1
167	Special	Irrigation Remote Control	Each	1
168	Special	Sylar Sync Sensor	Each	1
169	Special	1" Automatic Globe Valve, Decoder, and Valve Box	Each	10
170	Special	1.5" Automatic Globe Valve, Decoder, and Valve Box	Each	24
171	Special	1" Drip Zone Kit	Each	1
172	Special	3" PVC Isolation Valve in Valve Box	Each	6
173	Special	Quick Coupling Valve and Valve Box	Each	18
174	Special	Hunter Ultra Rotor Irrigation Head	Each	163
175	Special	Hunter MP Rotator Irrigation Head	Each	548
176	Special	4" Irrigation Sleeve - Direct Bury	LF	670
177	Special	4" Irrigation Sleeve - Bore	LF	205
178	Special	2-1/2" Class 200 Irrigation Mainline	LF	5,530
179	Special	1-1/4" Class 200 Irrigation Mainline	LF	170
180	Special	1" SDR 21 Polyethylene Irrigation Lateral	LF	11,710
181	Special	1-1/4" SDR 21 Polyethylene Irrigation Lateral	LF	1,900
182	Special	2-1/2" Class 160 Irrigation Lateral	LF	50
183	Special	2" Class 160 Irrigation Lateral	LF	515
184	Special	1-1/2" Class 160 Irrigation Lateral	LF	855
185	Special	3/4" CL315 PVC Drip Line Header Pipe	LF	400
186	Special	Netafim Techline TLDL6-12 Dripline	LF	2,230
187	635.9020	1/C #10 AWG Copper Wire	LF	4,680
188	635.9122	1/C #12 AWG Copper Wire	LF	4,840
	ARCHITECTURAL SIGNS			
189	Special	Entrance Sign and Sign Wall	Each	1
190	Special	Exit Sign	Each	1
191	Special	Exit Sign - small, exit text on 2 sides	Each	4
192	Special	Exit Sign - small, exit text on 1 side	Each	1
193	Special	Seatw all	LF	520

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ESTIMATE OF QUANTITIES

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Estimate of Quantities.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
B1
OF
B4

BID SCHEDULE 2 (FAA AIP ELIGIBLE)

ITEM NO.	STD BID ITEM	ITEM DESCRIPTION	UNIT	APPROX QUANTITY
	GRADING			
194	110.0400	Remove Drop Inlet	Each	1
195	110.0500	Remove Pipe Culvert	Ft	34
196	110.0510	Remove Pipe End Section	Each	1
197	110.1010	Remove Asphalt Concrete Pavement	SqYd	2,680
198	110.1100	Remove Concrete Pavement	SqYd	2,324
199	110.1140	Remove Concrete Sidew alk	SqYd	1,422
200	110.1540	Remove Luminaire Pole Footing	Each	3
201	Special	Remove Quartzite Paver Planter Wall	Each	2
202	110.8100	Saw Existing Asphalt	Ft	1,262
203	110.8110	Saw Existing PCC Concrete	Ft	669
204	120.0010	Unclassified Excavation	CuYd	8,955
205	120.0480	Scarify and Recompact Subgrade	SqYd	7,385
206	230.0010	Placing Topsoil	CuYd	1,321
207	230.0300	Salvage Topsoil	CuYd	1,321
	STORM SEWER			
208	450.0105	12" RCP Class 5, Furnish	Ft	57
209	450.0110	12" RCP, Install	Ft	57
210	450.0123	18" RCP Class 3, Furnish	Ft	9
211	450.0125	18" RCP Class 5, Furnish	Ft	42
212	450.0130	18" RCP, Install	Ft	51
213	450.0143	24" RCP Class 3, Furnish	Ft	29
214	450.0150	24" RCP, Install	Ft	29
215	Special	Storm Sew er Boot Connection	Each	1
216	462.0100	Class M6 Concrete	CuYd	11
217	480.0100	Reinforcing Steel	Lb	1,750.0
218	Special	Salvage & Reset Type B Frame & Grate Assembly	Each	1
219	670.5200	Special Frame & Grate (R-3067-C w / L Grate or equal)	Each	1
220	671.6100	Type Y Manhole Frame and Lid	Each	4
	WATER			
221	900.0201	6" C900 DR 18 PVC Watermain	Ft	107
222	900.0450	Valve Box Adjustment	Each	1
223	900.1502	Fire Hydrant	Each	1
224	900.6004	Excavate and Backfill for City furnished Smith Tap and Box	Each	1
225	Special	6"x6" Smith Tap Charge (paid to City)	LS	1
226	900.8001	6" Watermain Bedding Material	Ft	107
	SURFACING			
227	120.6200	Water For Granular Material	MGal	39
228	260.1010	Base Course	Ton	4,101
229	320.1200	Asphalt Concrete Composite	Ton	1,408
230	320.1250	Asphalt Concrete For Patching	Ton	27
231	332.0010	Cold Milling Asphalt Concrete	SqYd	1,009
232	380.0070	9" Nonreinforced PCC Pavement	SqYd	467
233	380.4010	6" PCC Fillet Section	SqYd	35
234	380.4070	9" PCC Fillet Section	SqYd	48
235	460.0380	Install Dow el in Concrete	Each	149
236	650.7000	Concrete Curb & Gutter Type SF66	Ft	4,256
237	650.7060	Concrete Curb & Gutter Type SF69	Ft	598
238	650.8000	Concrete Valley Gutter 6" Thick	SqYd	11
239	Special	PCC Pavement 6", Median Noses	SqYd	18
240	Special	PCC Pavement 9", Median Noses	SqYd	28
241	651.0050	5" Concrete Sidew alk	SqFt	13,650
242	651.6010	Detectable Warning Surface	SqFt	80
243	Special	Concrete Median Pavement, 6"	SqFt	3,127
244	831.0050	Geotextile Fabric For Subgrade Stabilization	SqYd	1,485

ITEM NO.	STD BID ITEM	ITEM DESCRIPTION	UNIT	APPROX QUANTITY
	STREET LIGHTING & TRAFFIC SIGNALS (MINNESOTA AVENUE)			
245	635.5020	2' Diameter Footing	Ft	9
246	635.5025	2.5' Diameter Footing	Ft	40
247	635.5062	Anchor Bolts (Signal)	Each	12
248	635.5100	Controller Cabinet Footing	Each	1
249	635.5318	18" Diameter Junction Box	Each	1
250	635.5324	24" Diameter Junction Box	Each	2
251	Special	Remove and Reset Electrical Junction Box	Each	1
252	635.5491	Tie to Existing Conduit	Each	2
253	635.5494	Tie to Existing Junction Box	Each	1
254	635.7500	Remove and Reset Luminaire Pole (50' Height)	Each	1
255	635.8020	2" Rigid Galvanized Steel Conduit	Ft	157
256	635.8030	3" Rigid Galvanized Steel Conduit	Ft	98
257	635.8040	4" Rigid Galvanized Steel Conduit	Ft	8
258	635.8120	2" Rigid Conduit, Schedule 40	Ft	203
259	635.8220	2" Rigid Conduit, Schedule 80	Ft	110
260	635.8330	2" Innerduct, SDR 13.5 w / Tracer Wire	Ft	1,285
261	635.9635	Install Street Light Wire	Ft	41
262	Special	Furnish and Install Transformer Base	Each	3
	PAVEMENT MARKINGS & PERMANENT SIGNS			
263	110.1400	Remove Pavement Marking, 4" or Equivalent	Ft	654
264	633.0030	Cold Applied Plastic Pavement Marking, 24"	Ft	101
265	633.1400	Pavement Marking Paint, 4" White	Ft	2,013
266	633.1430	Pavement Marking Paint, 24" White	Ft	548
267	633.1445	Pavement Marking Paint, Arrow	Each	6
268	Special	Remove Traffic Sign	Each	21
269	110.5021	Salvage Traffic Sign for Reset	Each	19
270	632.1320	2.0"x2.0" Perforated Tube Post	Ft	324
271	632.1330	2.25"x2.25" Perforated Tube Post	Ft	123
272	632.1340	2.5"x2.5" Perforated Tube Post	Ft	51
273	Special	Furnish Sheet Aluminum Sign w ith Reflective Sheeting	SqFt	182
274	632.3060	Install Traffic Sign on Post	Each	40
275	632.3065	Install Traffic Sign on Street Light	Each	17.0
276	632.3070	Install Traffic Sign on Sign Structure	Each	3.0
199	632.1340	2.5"x2.5" Perforated Tube Post	Ft	51.0
200	Special	Furnish Sheet Aluminum Sign w ith Reflective Sheeting	SqFt	182.30
201	632.3060	Install Traffic Sign on Post	Each	40
202	632.3065	Install Traffic Sign on Street Light	Each	17
203	632.3070	Install Traffic Sign on Sign Structure	Each	3

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ESTIMATE OF QUANTITIES

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Estimate of Quantities.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

TABLE OF STORM SEWER PIPE

BID ITEM NUMBERS													
	FURNISH	450.0105	450.0114	450.0123	450.0125	450.0143	450.0163	450.0183	450.2024	450.2028	450.0700	SPECIAL	450.7300
	INSTALL	450.0110	450.0120	450.0130	450.0130	450.0150	450.0170	450.0190	450.2025	450.2029	450.0701	SPECIAL	450.7301
		REINFORCED CONCRETE PIPE											CORRUGATED POLYETHYLENE PIPE
		CIRCULAR							FLARED END		RCP TEE		CIRCULAR
PLAN SHEET LOCATION	PIPE DIA.	12"	15"	18"	18"	24"	30"	36"	30"	36	18"x15"	18"x12"	12"
	TYPE	CLASS 5	CLASS 4	CLASS 3	CLASS 5	CLASS 3	CLASS 3	CLASS 3			(F&I)	(BOOT CONNECT.)	
	UNIT	FT	FT	FT	FT	FT	FT	FT	EACH	EACH	EACH	EACH	FT
SHEET H1 (AI #2 TO B1 #1)		131											
SHEET H1 (AI #2 TO AI #3)					187								
SHEET H1 (B1 #3 TO B1 #2)		59											
SHEET H1 (DI #1 TO B1 #3)		30											
SHEET H1 (DI #1 TO DI #2)				*9*									
SHEET H1 (DI #2 TO DI #3)					*42*								
SHEET H2 (DI #2 TO T #1)				142									
SHEET H2 (T #1)											1		
SHEET H2 (T #1 TO DI #4)			18										
SHEET H2 (T #1 TO JB #1)				128									
SHEET H3 (15"RCP CONNECT. TO DI #5)			161										
SHEET H4 (JB #5 TO DI #7)				235									
SHEET H5 (AI #2 TO DI #8)						465							
SHEET H5 (DI #8 TO DI #9)						*29*							
SHEET H5 (DI #9 TO DI #10)						40							
SHEET H6 (JB #6 TO JB #2)								198					
SHEET H6 (FE #1)										1			
SHEET H6 (FE #1 TO JB #6)								32					
SHEET H6 (JB #5 TO DI #11)		147											
SHEET H6 (DI #11 TO DI #12)		*47*											
SHEET H6 (SOUTH POND FOREBAY)													10
SHEET H6 (JB #7 TO OUTLET STR. #1)								212					
SHEET H8 (JB #7 TO OUTLET STR. #2)							126						
SHEET H8 (FE #2)									1				
SHEET H8 (FE #2 TO DI #8)							8						
SHEET H8 (NORTH POND FOREBAY)													10
SHEET H8 (T #2)												1	
SHEET H8 (T #2 TO B1 #4)		10											
TOTAL:		**424**	**179**	**514**	**229**	**534**	**134**	**442**	**1**	**1**	**1**	**1**	**20**

ITALICS= BID SCHEDULE 2 (FAA AIP ELIGIBLE)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TABLE OF STORM SEWER PIPE

DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
ACAD FILE: 21070_Drainage.dwg
DATE: 3/11/2011
REVISIONS:
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
B3
OF
B4

TABLE OF DROP INLETS & JUNCTION BOXES

TABLE OF DROP INLETS

PLAN SHEET LOCATION	INLET NO.	INLET SIZE (L'xW')	INLET TYPE	FRAME & GRATE / LID TYPE	CLASS M6 CONC. (CUYD)	REINF. STEEL (LB)
SHEET H1	AI #1	4x2*	-	R-3541-A ("L" GRATE)	-	-
SHEET H1	B1 #1	3x2	STANDARD	R-3067 ("VB" GRATE)	0.79	28.0
SHEET H1 & H5	AI #2	3x2^	STANDARD	RESET SALVAGED	1.04	28.0
SHEET H1	AI #3	4x3*	-	-	-	-
SHEET H1	B1 #2	3x2	STANDARD	R-3067 ("VB" GRATE)	0.79	28.0
SHEET H1	B1 #3	3x2	STANDARD	R-3067 ("VB" GRATE)	0.79	28.0
SHEET H1	DI #1	6x3	STANDARD	Y	1.94	321.6
SHEET H1	*DI #2*	*6x3*	*STANDARD*	*Y*	*2.00*	*324.7*
SHEET H1	DI #3	4x2*	-	-	-	-
SHEET H2	DI #4	6x3	STANDARD	Y	2.13	334.6
SHEET H3 & H4	AI #4	4x3**	-	-	-	-
SHEET H3	DI #5	6x3	STANDARD	Y	1.96	312.7
SHEET H3 & H4	DI #6	4x2*	-	Y (NEW 5'x3' INLET LID)	0.31	67.2
SHEET H4	DI #7	6x3	STANDARD	Y	2.05	324.7
SHEET H5 & H8	*DI #8*	*10x3*	*STANDARD*	*Y*	*4.00*	*679.3*
SHEET H5 & H8	*DI #9*	*6x3*	*STANDARD*	*Y*	*2.57*	*394.3*
SHEET H5 & H8	DI #10	10x3	STANDARD	Y	3.33	539.2
SHEET H6	DI #11	6x3	STANDARD	Y	1.87	305.1
SHEET H6	*DI #12*	*6x3*	*STANDARD*	*Y*	*2.05*	*323.9*
SHEET H8	*AI #5*	*3x2B*	-	*R-3067-C ("L" GRATE)*	-	-
SHEET H8	B1 #4	3x2	STANDARD	RESET SALVAGED	1.11	28.0
				SUBTOTAL:	28.7	4,067

ITALICS= BID SCHEDULE 2 (FAA AIP ELIGIBLE)

* = EXISTING DROP INLET

** = EXISTING AREA INLET

B = EXISTING B1 INLET

^ = REMOVE & INSTALL NEW AREA INLET

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SOUTH DAKOTA

TABLE OF JUNCTION BOXES

PLAN SHEET LOCATION	J.B. NO.	J.B. SIZE (L'xW')	FRAME & LID (TYPE)	CLASS M6 CONC. (CUYD)	REINF. STEEL (LB)
SHEET H2	JB #1	4x2*	R-1772A (NEW 5'x3' J.B. LID)	0.29	46.6
SHEET H2	JB #2	4x3**	R-1772A (NEW 5'x4' J.B. LID)	0.42	57.0
SHEET H3	JB #3	4x2*	R-1772A (NEW 5'x3' J.B. LID)	0.29	46.6
SHEET H3	JB #4	4x3**	R-1772A (NEW 5'x4' J.B. LID)	0.42	57.0
SHEET H3 & H4	JB #5	4x4***	-	-	-
SHEET H6	JB #6	4x4	R-1772A	4.15	267.5
SHEET H6 & H8	JB #7	8x6	R-1772A	9.10	912.0
			SUBTOTAL:	14.7	1387

* = EXISTING DROP INLET

** = EXISTING AREA INLET

*** = EXISTING JUNCTION BOX

QUANTITIES SUMMARY

BID ITEM NO.	BID ITEM	QUANTITY	UNITS
462.0100	M6 CONCRETE (BID 1= 32.2 CUYD; BID 2 = 11.2 CUYD)	43.4	CUYD
480.0100	REINFORCING STEEL (BID 1= 3,704 LBS; BID 2 = 1,750 LBS)	5,454	LBS
670.1200	TYPE B FRAME & GRATE (R-3067 w/ "VB" GRATE)	3	EACH
670.5200	SPECIAL FRAME & GRATE (R-3541 w/ "L" GRATE)	1	EACH
670.5200	*SPECIAL FRAME & GRATE (R-3067-C w/ "L" GRATE)*	*1*	*EACH*
671.6100	TYPE Y MANHOLE FRAME & LID (BID 1= 7 EA; BID 2= 4 EA)	11	EACH
950.5300	MANHOLE FRAME & COVER (R-1772A)	6	EACH
SPECIAL	STORM STRUCTURE ADJUSTMENT	3	EACH
SPECIAL	STORM FRAME & GRATE ADJUSTMENT	3	EACH
950.5000	ADJUST MANHOLE	4	EACH

TABLE OF STORM STRUCTURE ADJUSTMENTS

PLAN SHEET LOCATION	INLET OR J.B. NO.	INLET OR J.B. SIZE (L'xW')	ADJUSTMENT DETAILS
SHEET H1	AI #1	4x2*	ADJUST -0.58' ON 3 SIDES, ADJUST +0.42' ON FRONT SIDE
SHEET H2	JB #1	4x2*	ADJUST -0.79' ON 3 SIDES, ADJUST +0.21' ON FRONT SIDE
SHEET H3	JB #3	4x2*	ADJUST +0.26' ON 3 SIDES, ADJUST +1.26' ON FRONT SIDE

TABLE OF STORM FRAME & GRATE / MANHOLE CASTING ADJUSTMENTS

PLAN SHEET LOCATION	INLET OR J.B. NO.	INLET OR J.B. SIZE (L'xW')	ADJUSTMENT TYPE / DETAILS
SHEET H1	AI #1	4x2*	FRAME & GRATE (DURING CONCRETE PAVING)
SHEET H1	AI #3	4x3*	FRAME & GRATE +0.17' (DURING ASPHALT OVERLAY)
SHEET H2	JB #1	4x2*	MANHOLE (DURING ASPHALT PAVING)
SHEET H2	JB #2	4x3**	MANHOLE +0.82' OF ADJUST. RINGS (DURING ASPHALT PAVING)
SHEET H3	JB #3	4x2*	MANHOLE (DURING ASPHALT PAVING)
SHEET H3	JB #4	4x3**	MANHOLE +0.94' OF ADJUST. RINGS (DURING ASPHALT PAVING)
SHEET H3 & H4	AI #4	4x3**	FRAME & GRATE +0.43' (DURING ASPHALT PAVING)

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TABLE OF DROP INLETS & JUNCTION BOXES

DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 210710_Drainage.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

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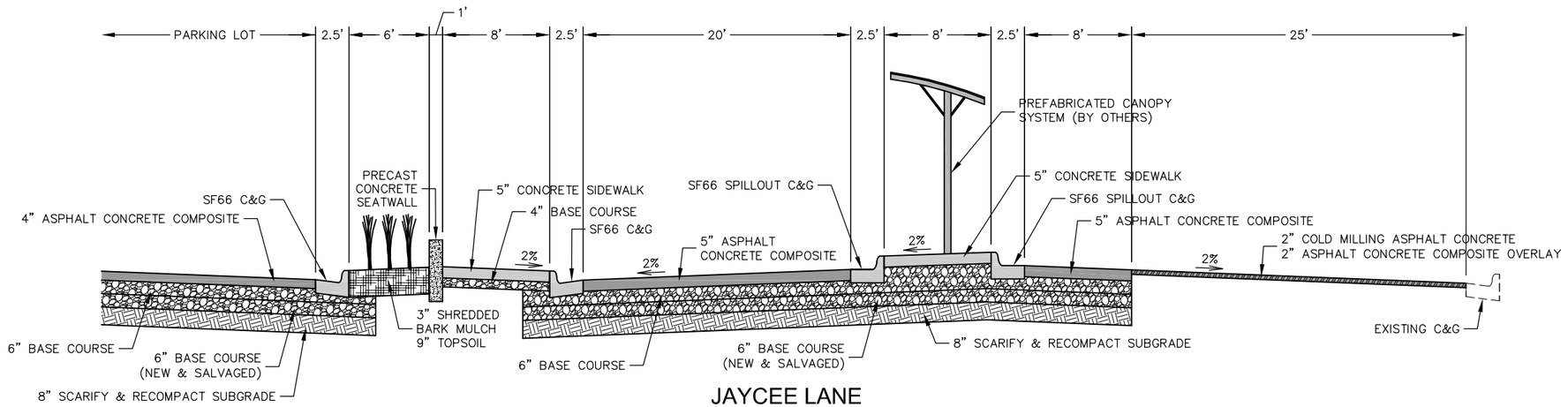
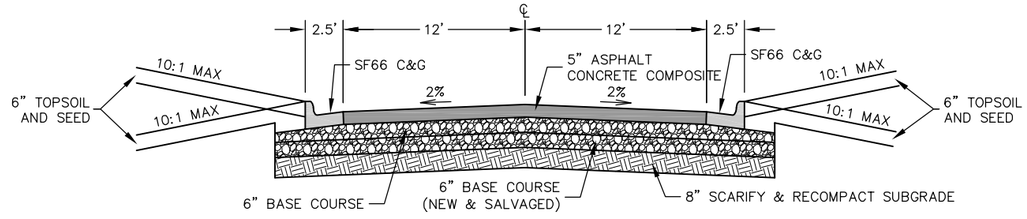
SCALE: 1"=10'H
1"=5'V

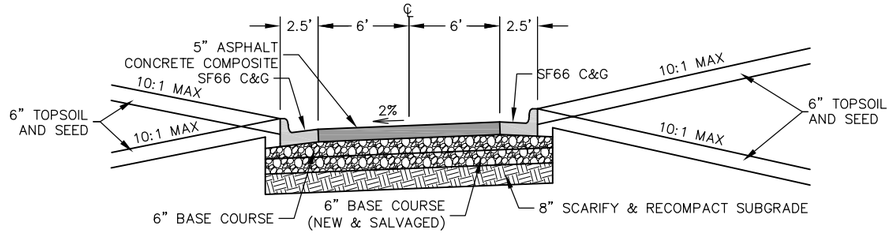


JAYCEE LANE
(TERMINAL DROP-OFF ZONE WITH MEDIAN)

NOTE
ENTRANCE AND EXIT PLAZA SHALL BE:
5" ASPHALT CONCRETE COMPOSITE OVER 11" BASE
OR
6" PCC PAVEMENT OVER 10" BASE
REFER TO SURFACING PLAN FOR EXACT LOCATIONS



RECIRCULATION ROAD



RECIRCULATION ROAD
(RETURN TO TERMINAL)

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SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TYPICAL SECTIONS

DESIGNED BY: MDW
DRAWN BY: DMS
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 210710_Typical Sections.dwg
DATE: 3/11/2011
BY:
DATE:
BY:
DATE:

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SHEET NO.
C1
OF
C1

GENERAL NOTES

PROJECT SCOPE

This project consists of the reconstruction of the Terminal Parking Lot and Terminal Access Roads Improvements at the Sioux Falls Regional Airport. Work includes demolition, erosion control, water main, storm sewer, grading, curb & gutter, asphalt composite pavement, PCC pavement, concrete sidewalk, street lighting, colored concrete median pavement, permanent signage, sign structures, lighting, pavement markings, irrigation (including private well) and landscaping.

SPECIFICATIONS TO BE USED

The most current edition of the City of Sioux Falls General Conditions for Public Improvements and Supplemental Standard Specifications, together with the most current edition of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata and required provisions, supplemental specifications, and/or special provisions as included in the Project Manual are hereby made a part of these specifications in its entirety unless otherwise revised, deleted, or supplemented herein.

The City of Sioux Falls Engineer's Office will provide a copy of the City of Sioux Falls General Conditions for Public Improvements and the City of Sioux Falls Supplemental Standard Specifications free of charge to all prospective bidders upon request. The Supplemental Standard Specifications can also be downloaded from the City of Sioux Falls website at address http://www.siouxfalls.org/publicworks under Engineering Documents. The South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata can be downloaded from the SDDOT's website at http://www.sddot.com/.

ORDER OF PRECEDENCE

If conflicts arise, the order of precedence of the contract documents shall be as follows: Plans over Special Provisions over Supplemental Specifications over City of Sioux Falls Supplemental Standard Specifications over City of Sioux Falls General Conditions for Public Improvements over South Dakota Department of Transportation Supplemental Specifications and Errata over South Dakota Department of Transportation Standard Specifications for Roads and Bridges.

CONSTRUCTION LIMITS

The construction limits shall be within work limits shown on the plans. Material storage and vehicle and equipment traffic shall be limited to the construction limits and the area designated on the traffic control sheets for staging and storage. All paved streets adjacent to the project are to be cleaned at the end of each working day.

It shall be the responsibility of the contractor to coordinate with the property owners relating to access to their property and any subsequent damages.

GRADE STAKES, BENCHMARKS AND MONUMENTS

All stakes, stones, and monuments now in place and marking lines and corners of boundaries which are likely to be affected by the work herein provided for shall be carefully preserved by the Contractor. In no case shall any excavation be made within five feet (5') of any such stake, stone or monument until they have been properly reset, witnessed, or otherwise cared for by the Engineer and permission is given to proceed with the work.

All lines, grade stakes, and benchmarks set by the Engineer in connection with the work herein provided for shall be carefully preserved by the Contractor and shall not be disturbed nor moved from the exact position and elevation as set by the Engineer. No excavated material shall be thrown over or against said stakes and, except where necessary to remove the stakes as the work progresses, all stakes shall be carefully preserved in the original position and elevation until the work has passed final inspection and been accepted. Stakes, which must be removed as the work progresses shall be so removed only upon the order of the Engineer.

All stakes, stones, monuments, and benchmarks disturbed or removed through carelessness or without proper authority will be reset at the expense of the Contractor.

NOISE PERMIT

The Contractor shall obtain a noise permit from the City of Sioux Falls Health Department (Mark Schuttloffel 367-8783) if working between 10:00 PM to 6:00 AM. The Contractor shall submit a request in writing to the Engineer for approval 24 hours in advance when nighttime work is to occur.

SUBMITTALS

The following documents shall be submitted by the Contractor:

1. Construction Schedule
2. Asphalt/Concrete job mix formula
3. Certification of Compliance for Asphalt
4. Materials Certifications
5. Shop Drawings

CONSTRUCTION SCHEDULE

The Contractor shall prepare a construction schedule for approval to the Engineer that will ensure the completion of the project within the time frame specified. This schedule must be provided to the Engineer for review a minimum of 3 days prior to the preconstruction meeting. The notice to proceed will not be issued until the schedule has been approved by the Airport. The construction schedule shall be in bar or network diagram form and show the start and completion dates for significant items of work in their respective phases. Significant items of work includes but is not limited to: erosion control, removals, grading, the installation of watermain, sanitary sewer, storm sewer, lighting, base course, curb and gutter, paving, sidewalk, signage, irrigation, landscaping and pavement markings. When applicable the schedule shall include submission dates for shop drawings, manufacturing and installation of materials, supplies, equipment, and testing for various parts of the work.

The construction schedule shall be updated on a bi-weekly basis. If it appears the rate of progress is such that the contract will not be completed within the time frame allowed the Contractor will be required to provide written documentation as to what measures they will take to complete the project within the specified time frame or to prosecute work in a satisfactory manner. Failure to submit the schedule on a bi-weekly basis will result in the Airport withholding the pay applications until the updated schedule is submitted.

COORDINATION MEETINGS

The contractor shall conduct coordination meetings with the subcontractors, utilities, the Engineer and Airport Users. These meetings shall be held weekly in the Terminal Building Main Floor Conference Room. The Contractor shall determine the time and location and as approved by the Engineer. The frequency of the meetings may be reduced, as approved by the Engineer, if it is determined that adequate coordination is being attained.

Airport Users will be invited to the first half of the meeting. The Contractor will give a brief summary of the project schedule and will answer any questions. The Users will then be dismissed and the Contractor can discuss construction coordination and other issues as needed.

All costs to conduct the coordination meetings shall be incidental to the project.

ACCEPTANCE TESTING

The Airport will be responsible for taking the first acceptance test and a backup test if required. All subsequent tests required due to failures will be paid by the Contractor by deducting the cost from the pay request.

DRAINAGE

Drainage is the Contractor's responsibility. Contractor shall be aware of existing drainage conditions and facilities, and shall provide for drainage during all phases of construction. Damage caused by improper temporary drainage facilities shall be repaired at the Contractor's expense and to the satisfaction of the Engineer.

UTILITIES

All utilities shall be verified by the Contractor prior to starting work. Any time existing utilities impede the progress of work, the Contractor shall immediately notify the Engineer.

All utilities, whether privately or publicly owned, shall be moved, relocated, and/or replaced as necessary, by the respective utility company or companies except as noted in the plans. These modifications shall take place in advance of construction when applicable or when advised by the Engineer. No payment shall be made to the Contractor unless specified in the contract documents.

The Contractor shall safeguard all utilities and coordinate his efforts to coincide with utility work by others in order to minimize inconvenience to the public and utility companies. When pipe utility installation crosses existing utilities, the Contractor shall be responsible for supporting the utilities in a manner that is acceptable to the owner of the utility. Any damage caused to the utilities due to Contractor carelessness shall be repaired at the Contractor's expense to the satisfaction of the utility owner.

Abandoned utilities (gas lines, telephone lines, etc.) encountered during construction shall be removed and disposed of by the Contractor. Costs associated with this work shall be incidental to the various bid items associated with work adjacent to the abandoned utility.

The Contractor shall be responsible for the coordination of all work associated with the disturbance, removal, or replacement of unidentified metallic natural gas mains or services when encountered. The Contractor shall, in advance and prior to proceeding with the work, coordinate with the City of Sioux Falls, MidAmerican Energy Company, and all other companies related to the associated work.

Existing utility locations shown on drawings are approximate. There is no guarantee that the utilities shown include all such utilities or that the locations indicated are exact. The Contractor shall contact South Dakota One Call system, utility companies, and the City of Sioux Falls to verify locations of all existing utilities prior to excavation.

The Contractor shall be responsible for notifying South Dakota One Call 1-800-781-7474 to have utilities field located.

The following utility companies are known to have facilities on the project:

Qwest
Bob Donat (Engineering)
(605) 339-5343

Midcontinent Communications
Al Mullinix
274-8546

Sioux Falls Water & Sewer
Brad Maddox
668 W. Algonquin Street
Sioux Falls, SD 57104
(605) 367-8810

Sioux Falls Water Purification Plant
Bruce Anderson
(605) 940-0526

MidAmerican Energy Company
Eric Berg
1200 S Blauvelt
Sioux Falls, SD 57105
(605) 373-6038

Municipal Light & Power
Mike Burkard
2000 North Minnesota
Sioux Falls, SD 57104
(605) 367-7006

The Contractor shall cooperate with and coordinate his efforts to work with the utility companies and their contractors. Each bidder shall be responsible prior to bid letting, for determining the effects of utility work on the project work scope and schedule, and shall account for all such effects in his bid.

LOCATING UTILITY

This work consists of excavating material to locate a utility line, (Private or Public), when the utility owner cannot find said line, or utility line is not within four (4) feet either side of markings established by the utility owner. Payment for this item will be at the contract unit price per each. **Five** locates are estimated for this project.

VERIFY UTILITY

This work consists of excavating material to verify the depth of an existing utility line, (Private or Public), to avoid possible conflicts, when directed by the Engineer. Payment for this item will be at the contract unit price per each. **Two** verifications are estimated for this project.

The Contractor shall verify the depths of the following utilities:

- 24" Well line between Area Inlet #2 and B1 Inlet #1
- 24" Well line between at Jaycee Lane water main crossing

After verification, the Contractor shall coordinate information with the Engineer.

ADJUSTMENT OF MANHOLE CASTINGS AND VALVE BOXES

Under these items of work, the frames and covers on sanitary sewer manholes and storm sewer junction boxes and water main valve boxes are to be adjusted flush with the top of the finished asphalt or concrete surface. The Contractor shall furnish the new manhole frames and covers where shown on the plan sheets. The sanitary sewer frames and covers shall be in accordance with the supplemental standard

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

DESIGNED BY: MDW
DRAWN BY: MDW
CHECKED BY: MDW
REVISIONS:
FILE: 21071g_General Notes.doc
DATE: 3/17/2011
BY:
DATE:
BY:
DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
D1
OF
D6

specifications. The existing valve boxes are to be adjusted to the top of the finished surface as per standard plate 900.02.

The adjustment of the manhole covers involves adding or removing adjusting rings under the frame. If the elevation of the covers is too high, it may be necessary for the Contractor to remove the upper course of brick and/or break down the concrete walls in the existing manhole and seat the manhole frames in mortar, at the elevations for the manhole covers to be flush with the top of the finished surface. Adjustment of frame and covers shall be in accordance with city detail for manhole casting and cover adjustment. The maximum amount of adjustment with adjusting rings is 14 inches.

Existing frames and/or lids cracked or broken through the carelessness of the Contractor's forces shall be replaced with new frames and/or lids at the Contractor's expense.

Payment for adjusting manhole frames and covers and valve boxes shall be the unit contract bid price per each in the proposal which price shall constitute full compensation for material, adjusting rings, tools, asphalt and concrete removal and replacement, excavation, back filling, furnishing labor, and other incidentals necessary to complete the work. Payment shall be made for both new and existing manhole frames and covers and valve boxes which are adjusted to the new pavement height.

WASTE DISPOSAL SITE

All material generated from this project for disposal must be disposed of at a state-permitted solid waste disposal site. Depending on what material is generated and whether it is contaminated or uncontaminated will determine which permitted facility can accept it. Permitted facilities include construction and demolition debris sites, restricted use sites, and regional landfills. The Contractor can contact SDDENR Waste Management Program at (605) 773-3153 to identify locally permitted disposal sites for various categories of contaminated and uncontaminated materials.

All costs associated with disposing of waste shall be incidental to the various contract items.

DEWATERING

It is anticipated that groundwater may be encountered during excavation. Dewatering may be needed to perform the contract work. There is no separate bid item for dewatering and all costs associated shall be incidental to the various related bid items.

It shall be the responsibility of the Contractor to discharge and dispose of the water in an approved manner. No water shall be allowed to enter the sanitary sewer. The Contractor shall dispose of water in a suitable manner without damage to adjacent property. The water shall be filtered using an approved method to remove sand and fine-sized soil particles before disposal into any drainage system. Discharge from dewatering operations shall be controlled to prevent erosion and scour.

The Contractor is responsible for obtaining a Temporary Water Use Permit from the SD DENR prior to commencing dewatering operations. Prior to excavating, the Contractor shall submit for review a dewatering plan to be approved by the Engineer.

REMOVALS

REMOVE CONCRETE PAVEMENT

The concrete pavement shall be disposed of by the Contractor at a site approved by the Engineer. Payment for concrete pavement removal is included in the contract unit price per square yard for "Remove Concrete Pavement". Payment shall be at the contract unit price per square yard, regardless of variations in thickness.

Curb and Gutter shall be paid under the item "Remove Concrete Pavement."

The aggregate in the existing P.C.C. pavement is quartzite.

REMOVE ASPHALT PAVEMENT

The asphalt concrete pavement shall be disposed of by the Contractor at a site approved by the Engineer. Payment for asphalt mat removal is included in the contract unit price per square yard for "Removal of Asphalt Concrete". Payment shall be at the contract unit price per square yard, regardless of variations in thickness.

When asphalt is laid over concrete pavement, removal of the asphalt surfacing shall be incidental to the unit price for "Removal of Concrete Pavement".

Existing asphalt surfacing thicknesses as identified by soil borings are as follows:

Soil Boring No.	Location	Asphalt Thickness
4	See Soils Report	4"
5	See Soils Report	4"
6	See Soils Report	4"
7	See Soils Report	6"
8	See Soils Report	4"
9	See Soils Report	4"
10	See Soils Report	6"
11	See Soils Report	3.5"
12	See Soils Report	4"
13	See Soils Report	4"
14	See Soils Report	4"

CLEARING

The lump sum payment for "Clearing" will be full compensation for all removal and disposal of trees less than six (6) inches in diameter, stumps, roots, and other vegetation designated for removal and mowing as required. The Engineer will establish right-of-way lines and construction limit lines prior to the start of clearing operations. The Engineer, at the start of the project, will mark the clearing limits.

Organic material shall not be used as fill in trenches or embankment. The Contractor shall dispose of all trees, brush, stumps, roots and other remains in a legal manner. Burying or burning of debris on or adjacent to the project shall be prohibited.

Erosion control measures shall be installed and functioning prior to clearing and excavation. See erosion control plans and notes.

CLEAR AND GRUB TREE

The unit price payment for "Clear and Grub Tree" will be full compensation for all removal and disposal of trees. The Engineer will establish right-of-way lines and construction lines prior to the start of clearing and grubbing operations.

Some trees may require the Contractor to have the tree topped by a licensed arborist, prior to clearing and grubbing the tree, due to the close proximity of physical features to remain. All costs associated with this work is considered incidental to the contract unit price for "Clear and Grub Tree".

Some trees to be removed are located near driveway pavements, fences or other items not being removed with this project. The Contractor shall cut these trees level with the ground, and grind the stump 8" below ground line. All costs associated with this work is considered incidental to the contract unit price for "Clear and Grub Tree". Removal of trees, are identified on the Demolition sheets. All smaller trees and shrubs (less than six (6) inches in diameter) will be removed and paid under the bid item "Clearing".

REMOVE LUMINAIRE POLE FOOTING

The unit price for "Removal of Luminaire Pole Footings" shall be full compensation for removing existing lighting footings. This item is not intended to pay for removal of items set in concrete such as parking meters, bollards, sign posts, fence posts, security barrier posts.

REMOVE ELECTRICAL CONDUIT

Removal of abandoned electrical conduit, as required for grading or other utility installations, shall be considered incidental with no separate payment made.

REMOVE PARKING METER

The unit price for "Removal of Parking Meters" shall be full compensation for all equipment, labor and incidentals necessary to removal the existing parking meters along Jaycee Lane including any concrete footing.

REMOVE PIPE CULVERT

The unit price for "Remove Pipe Culvert" shall be full compensation for removing storm sewer pipe, regardless of size, and backfilling trench to specified density at locations shown on the demolition plan sheets.

Where existing pipe remains in-place, concrete plugs shall be installed at the ends to settlement into pipe. **Payment for concrete pipe plugs shall be considered incidental.**

REMOVE FENCE

The unit price for "Remove Fence" shall be full compensation for all equipment, labor and incidentals necessary to remove the existing chain link security fence with security top at locations shown on the demolition plan sheets. The bid item shall include removal of the fence fabric, posts, rails and concrete footings. Fabric shall be rolled up and returned to the Airport Maintenance Shop on the west side of the airfield. All other fencing materials shall be disposed of offsite.

REMOVE CONCRETE BARRIER POST

The unit price for "Remove Concrete Barrier Post" shall be full compensation for all equipment, labor and incidentals necessary to remove the existing security exposed aggregate barrier posts around the parking lot perimeter including any concrete footing. Removal of barrier chain between the posts shall be considered incidental to the security barrier post removal.

The Contractor shall salvage 50 of the best condition posts and return them to the Airport. Location for stockpiling the posts shall be determined by the Airport during construction.

REMOVE OVERHEAD GATE AND EQUIPMENT

The lump sum price shall be full compensation for removal of the existing overhead gate, footings and equipment located on the north side of the Jaycee Lane entrance as shown on the demolition plan. The gate operator/motor shall be returned to the Airport Maintenance Shop on the west side of the airfield. All other gate materials shall be disposed of offsite.

REMOVE ENTRANCE AND EXIT LANE EQUIPMENT

The lump sum price for the item "Remove Entrance and Exit Lane Equipment" shall be full compensation for all equipment, labor and incidentals necessary to remove and dispose of all entrance and exit lane gate equipment including the following:

- Entrance Ticket Dispensers – 4 Each
- Entrance/Exit Gate Operators – 8 Each
- Exit Credit Card Pay Machine – 1 Each

REMOVE EXIT BOOTHS

The contract unit price for the item "Remove Exit Plaza Booth" shall be full compensation for all equipment, labor and incidentals necessary to remove and dispose of each of the two exit plaza prefabricated booth buildings including the remaining furnishings and equipment inside the booths and exterior attached power boxes, equipment and signage. The Contractor shall coordinate with Standard Parking to ensure all salvageable furnishings and equipment are removed prior to demolition.

REMOVE EXIT PLAZA CANOPY

The lump sum price for the item "Removal of Plaza Canopy" shall be full compensation for all equipment, labor and incidentals necessary to remove and dispose of the canopy system and eight columns at the existing plaza including any lighting or attached signage. The canopy dimensions are approximately 56' wide x 34' long. Removal of canopy column footings are paid separately.

REMOVE QUARTZITE PAVER PLANTER WALL

The unit price for "Removal of Quartzite Paver Planter Wall" shall be full compensation for all equipment, labor and incidentals necessary to remove the existing quartzite paver walls including any footing supporting the walls. The quartzite pavers shall be returned to the City Parks Storage Lot just north of Elmwood Golf Course. All other wall materials shall be disposed of offsite.

SAW EXISTING ASPHALT PAVEMENT

Asphalt sawing shall be performed at all locations shown on the plans or as directed by the Engineer during construction. The pavement shall be sawed full depth. The Contractor shall exercise particular care to ensure that the adjacent surface is left intact and undamaged when removing the sawed out portion. Sawing of asphalt shall be paid for once at each location. Additional sawing required to form neat edges prior to paving will be incidental to sawing bid item.

Where new surfacing is placed adjacent to existing asphalt concrete, a joint shall be sawed in the existing bituminous material prior to placing new materials.

"Saw Existing Asphalt Pavement" shall be paid for at the contract unit price per lineal foot.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

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DRAWN BY: MDW
CHECKED BY: MDW
REVISIONS:
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BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
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SAW EXISTING PORTLAND CEMENT CONCRETE PAVEMENT

Concrete sawing shall be performed at all locations shown on the plans or as directed by the Engineer during construction. The pavement shall be sawed full depth. The Contractor shall exercise particular care to ensure that the adjacent surface is left intact and undamaged when removing the sawed out portion. Sawing of PCC concrete shall be paid for once at each location. Additional sawing required to form neat edges prior to paving will be incidental to sawing bid item.

Where new Portland Cement Concrete (PCC) pavement is to be placed adjacent to existing PCC pavement, the existing PCC pavement shall be sawed full depth to a true line with a vertical face.

"Saw Existing Portland Cement Concrete Pavement" shall be paid for at the contract unit price per lineal foot.

GRADING

Total Excavation	29,851 CuYd
Embankment + 15% Shrink	1,857 CuYd
Waste	27,994 CuYd
Total Embankment	29,851 CuYd
Excavation	20,111 CuYd
Stripping Topsoil	4,402 CuYd
Asphalt Pavement Removal	4,964 CuYd
Concrete Pavement Removal	374 CuYd
Total Unclassified Excavation	29,851 CuYd

The estimated quantity of stripped Topsoil has been added to the Unclassified Excavation quantity. By doing this, the quantity of Topsoil from the cuts will be paid for twice as Unclassified Excavation. This will be full compensation for Excavation, which includes necessary undercutting to provide space for placement of topsoil.

The volume of asphalt pavement removal is included in the Unclassified Excavation quantity. The quantity of asphalt pavement removal shall be plans quantity and will not be adjusted according to field measurements.

SOIL BORINGS

Soil boring information taken for the project has been included in the project specifications. Locations, water, and rock depths encountered at the time of the borings are indicated on the plans. There is no expressed or implied agreement that depths or character of materials shown are correct or complete. Conditions affecting work may actually differ from those shown in the boring logs. Bidders are expected to examine the site, interpret or disregard soil boring logs as they see fit, and arrive at their own conclusions regarding the character and locations of materials to be encountered. All Contractors desiring to take additional soil borings on this project must obtain permission from the property owners involved and from the Engineer.

UNCLASSIFIED EXCAVATION

Excavate the existing subgrade to provide for the required depth of aggregate base course and asphalt surfacing or aggregate base course and concrete surfacing. Earthwork shall be performed as shown on appropriate typical sections or plan notes.

Due to the difficulty in making field measurements on this project and to expedite final payment, the computed quantity of Unclassified Excavation shall be the basis of payment for this item. No field measurements will be made for payments except when changes from the plan shown construction limits are ordered by the engineer.

All excavations made for underground utilities are incidental to the installation of that utility. All spoil material removed for pipe installation is the property of the Contractor and is to be removed from the project by the Contractor. All spoil material and costs for removing it are incidental to pipe installation costs.

Undercutting of subgrade will not be required due to the possible utility conflicts. No separate payment will be made for preparation, shaping and recompacting of the subgrade. Scarify and recompaction will be required where possible. Separate payment will be made for scarify and recompact.

The excess soil resulting from earthwork activities, if any, shall become the property of the contractor who shall be responsible for its removal from the site.

Water for compaction of subgrade and embankments shall be provided by the contractor and used to maintain soil at or near optimum moisture content to obtain required density. Compaction of subgrade and embankments shall be governed by the specified density method. Compaction of embankment shall be no less than 95% of Standard proctor density. Separate payment will be made for water used for compaction of subgrade. The estimated quantity of water for embankment is based on 12 gallons per cubic yard of Unclassified Excavation.

SHRINKAGE FACTOR: Embankment +15%

UNCLASSIFIED EXCAVATION - DIGOUTS

An estimated quantity of 100 cubic yards of "Unclassified Excavation – Digouts" has been included in the plans to excavate isolated locations of unstable grade as determined by the Engineer. The excavated material shall be disposed of by the Contractor. The backfill material shall be aggregate base course or other material as approved by the Engineer.

The actual field measured quantity of "Unclassified Excavation – Digouts" will be the basis for payment.

SCARIFY AND RECOMPACT SUBGRADE

The depth of scarification of the subgrade shall be no less than 8 inches. The basis of payment for "Scarify & Recompact Subgrade" will be plan quantity. No separate measurement will be made unless so directed and authorized by the engineer.

If subgrade stabilization is not necessary the engineer may remove the scarify and recompact bid item for those areas.

PLACING TOPSOIL

Prior to starting construction operations, existing topsoil shall be removed from the construction limits to cover the disturbed areas and will be paid for under the bid item Salvage Topsoil.

Following completion of grading operations, topsoil shall be spread evenly over the disturbed areas to a depth of 6 inches for all areas scheduled for turf grass. See Erosion Control plans for locations.

For areas scheduled for planting beds, the topsoil depth shall be 18".

The small berms to be constructed between the throughout the project shall be constructed entirely of salvaged topsoil.

No topsoil shall be hauled off site until all topsoil until it is determined that there is adequate topsoil to meet the requirements above.

The basis of payment for "Placing Topsoil" will be the plan quantity. No separate measurement will be made unless changes from the plan shown construction limits are ordered by the Engineer.

SEE SECTION "E" FOR TRAFFIC CONTROL NOTES

SEE SECTION "F" FOR EROSION CONTROL NOTES

SANITARY SEWER

SANITARY SEWER - GENERAL

1. Sanitary sewer work involves a sanitary sewer holding tank and sanitary sewer service from the holding tank to the Exit Plaza office/bath building.

2. Contractors License. The Contractor shall obtain a "South Dakota State Sewer and Water Plumbing Contractor's License" prior to commencing construction.

3. The Contractor shall notify the City Engineer's office upon completion of the sanitary sewer. Inspection of the sanitary sewer will be made by the City Engineer's office with the Contractor and all discrepancies will be noted. Final payment will not be made until all discrepancies have been corrected and the sanitary sewer work has been given final acceptance.

PRECAST 1300 GALLON SANITARY SEWER HOLDING TANK

The Precast Sanitary Sewer Holding Tank shall conform to the following:

- Capacity = 1300 gallons
- Diameter = 108"
- Width = 96"
- Tanks Height = 59"
- Precast Slab Cover shall include 1 – 24" manhole opening with concrete manhole cover, 1 – 6" opening for pump access and 1 – 6" opening for sewer service connection.
- The pump access shall have a 6" schedule 80 PVC riser pipe that extends to the finished surface grade and removable threaded plug.

The holding tank shall be constructed of reinforced concrete. Thickness, strength and reinforcement shall be designed by manufacturer to accommodate H-20 surface loadings at the depth specified. The holding tank shall be a Josten 1300 Gallon Precast Round Holding Tank or approved equal.

The contract unit price for "Precast 1300 Gallon Sanitary Sewer Holding Tank" shall full compensation for furnishing and installing the holding tank and associated fittings as described above including backfilling.

STORM SEWER

STORM SEWER - GENERAL

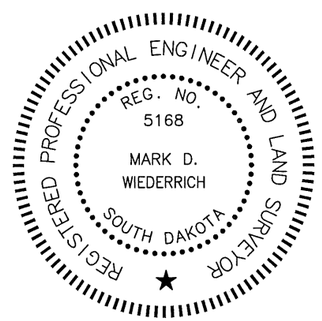
All reinforced concrete pipe shall be Class III for areas of normal trench construction. Standard bedding material (Type B or Type D) for reinforced concrete storm sewer pipe shall be considered incidental to the installation of the storm sewer pipe. No separate measurement or payment shall be made for standard bedding material or joint seals.

INLETS AND JUNCTION BOXES

Storm sewer inlets and junction boxes shall be paid for under the unit prices for "Class M-6 Concrete" and "Reinforcing Steel" as shown in the table of quantities. Plans quantity will be the basis for payment unless changes are ordered by the Engineer. Casting shall be paid separately under their respective bid items.

STORM STRUCTURE ADJUSTMENT

If adjustment of a storm sewer inlet or junction box requires additional work to lower or raise existing structure walls, this work shall be paid under the item "Storm Structure Adjustment". The anticipated extent of the structure modification is shown on the plan notes. All labor, materials, equipment and incidentals necessary to modify the structure including sawing walls to lower or forming and pouring additional wall are included in the per each unit price for "Storm Structure Adjustment."



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

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STORM FRAME & GRATE ADJUSTMENT

If adjustment of a storm sewer frame and grate is required, this work shall be paid under the item "Storm Frame & Grate Adjustment" and shall include all labor, materials, equipment and incidentals necessary to adjust the inlet to finished grade as noted on the Utilities plan sheets. Adjustments shall be made by installing adjusting rings as approved in the Supplemental Specifications or by shimming and grouting void with concrete.

CONNECT TO EXISTING STORM STRUCTURE

The contract unit price for the item "Connect to Existing Storm Structure" shall be full compensation for the labor, materials, equipment and incidentals necessary to connect a new storm sewer pipe to an existing storm sewer inlet or junction box including creating an opening in the wall to accommodate the new pipe, inserting the pipe and grouting the connection to provide a watertight seal and restore the structural integrity of the inlet or junction box.

CONNECT TO EXISTING PIPE

If a male/female joint is not available to connect existing pipe with new storm sewer pipe, a concrete collar shall be installed. The collar shall be Class M-6 concrete and shall be 6 inches thick and 2 feet wide with wire mesh reinforcement. All costs for connecting to existing pipe shall be incidental to the various pipe bid items.

WATER

WATER MAIN

All valve operation will be done by the City of Sioux Falls Water Department.

All ductile iron pipe and fittings shall be wrapped with polyethylene tube material to protect the pipe from any future corrosion. The poly material shall be installed as detailed in the supplemental specifications and the ductile iron handbook from DIPRA and ANSI A21.5 (AWWA C105).

WATER MAIN PARALLELING OR CROSSING SEWERS

Installation of water mains parallel to sanitary or storm sewer lines shall be completed in a manner such that the water mains shall be laid at least 10 feet horizontal distance from any existing or proposed sanitary sewer, storm sewer, or sewer manhole. Where water mains cross above storm sewers or sanitary sewers, there shall be at least 18 inches vertical clearance between the bottom of the water main and the top of the sewer pipe and one full length of water pipe must be located so both joints will be as far from the sewer as possible.

A water main may cross below a non-perforated sewer main if minimum vertical separation of 18 inches is provided and the sewer main is of acceptable water main pipe material and is a continuous piece of at least 20 feet in length with the length of the water pipe located so both joints are as far as possible from the sewer main. A water main may cross either above or below a non-perforated sewer line with a vertical separation of less than 18 inches if either the water or sewer line is encased in PVC or cast iron for at least 10 feet each side of the crossing. If PVC or cast iron is used as encasement material, the ends shall be adequately sealed with a rubber boot. Where water mains are to be installed in parallel with a sewer or a sewer manhole that is less than 10 feet away horizontally and is not at least 18 inches below the water main, the water main shall be encased in PVC or cast iron for the entire distance that the sewer is too close to the water main. If PVC or cast iron is used as encasement material, the ends shall be adequately sealed with a rubber boot. Payment for crossings shall be incidental to the contract unit prices for the water main items.

WATER MAIN DISINFECTION

When minor water main work occurs (i.e. tie-in connections of new water main to existing water main, water main adjustments, installation of new valves on existing main or any other work deemed minor by the Engineer) the existing main, prior to the completion of the bacteria testing, may be returned to service once the line has been flushed and a boil order has been issued. The boil order will be rescinded with the passing of the bacteria test.

When flushing the water main, the water used for disinfecting the main shall not reach a stream, river, or water way if chlorine is detected in the water. Contact City Engineering for more information.

The Contractor shall notify all consumers affected by any interruption of water service at least 24 hours before the interruption of water service. Consumers shall be verbally notified when possible. In the event a consumer cannot be verbally notified, the Contractor shall secure a door hanger provided by City Engineering to the most frequently used entrance.

DISCHARGE OF CHLORINATED WATER

Water from the City's Water Distribution System that is drained into work areas or open trenches must be discharged without impact to the environment. The following is a prioritized list for dewatering of trenches in work areas:

1. Water from the distribution system shall be pumped to the City's sanitary sewer system. Contractor is responsible for verifying hydraulic loading on existing sanitary sewer system during trench dewatering operations to ensure that sewer backups do not occur.

2. Water from the distribution system shall be pumped to areas were water can be stored and discharged through infiltration. Overland flow is not allowed. If discharge is on private property, contractor shall secure permission prior to discharge.

3. Water from the distribution system may be pumped into vactor trucks or septic tank trucks and hauled to the Water Reclamation Plant or other facility permitted by (DENR) to accept such discharge.

The above items will be considered incidental to the work necessary to complete tie-ins to existing and operational waterlines.

SURFACING

AGGREGATE BASE COURSE

Aggregate Base Course shall be in accordance with SDDOT Standard Specifications Section 260. Material for base course shall meet requirements set forth in SDDOT Standard Specifications Section 882.

Aggregate Base Course shall be compacted with pneumatic rollers and shall continue on each lift of the base course until the surface is firm and unyielding, and attains a density of 97% of the maximum dry density as determined by SD 104, Method 4 and SD 105 or SD 114.

Water for compaction is estimated at 12 gallons per ton and shall be paid for at the contract unit price per MGAL for bid item "Water for Granular Material".

Payment shall be made on a per ton basis. Any aggregate base course delivered to the site without a scale ticket will not be measured for payment.

SALVAGE AGGREGATE BASE COURSE

The Contractor shall salvage existing base course to the extent possible during construction operations. Salvaged base course shall be free of clay, topsoil and other contaminants. The salvaged base course shall be used in the lower lift(s) of the proposed parking lot and access road pavement sections. Salvaged Base Course shall not be used in the top 6" of the proposed base section. The contract unit price per cubic yard for **"Unclassified Excavation"** shall be full compensation for salvaging, stockpiling, placing, grading and compacting the base course to plan specifications.

COLD SURFACE ROTOMILL PLANING

Cold surface rotomill planning shall be completed to the dimensions as shown on the plans for both depth and width.

All grindings from rotomill operations shall be disposed of by the contractor. The cost of disposing grindings and all transportation shall be included in the cost per square yard of rotomill planning.

The computed quantities shown in the estimate of quantities shall be the basis of payment unless changes are directed by the Engineer.

ASPHALT CONCRETE FOR PATCHING

"Asphalt Concrete for Patching" shall be installed in locations shown in the plans or as directed by the Engineer. The minimum depth of all asphalt concrete patching shall be 4".

Compaction of asphalt concrete shall be by the specified density method. The minimum density requirement is 92% (Rice Method) of specified density or to the satisfaction of the Engineer.

Asphalt concrete composite shall conform to the SDDOT Specifications for Class G, Asphalt Concrete. The top lift shall conform to Class G-2 for the mineral aggregate specifications. All lower lift(s) shall conform to Class G-1 for the mineral aggregate specifications unless otherwise noted or by direction of the Engineer. The surface course shall not exceed 2" in thickness when laid and compacted.

The asphalt cement used in the mixture shall be Performance Graded AASHTO Designation: PG64-22 or PG58-28 and shall conform to the current SDDOT Specifications. Certificates of compliance will be required on the asphalt concrete composite mix and the performance graded asphalt binder. The Engineer may accept the mixture on the basis of the certificate of compliance and visual inspection or may test the mixture for specification compliance.

Tack coat (SS-1h or CSS-1h) shall be applied between each lift of asphalt and along existing concrete and asphalt faces and any areas as determined by the Engineer at the rate of .05 gal/sq. yd. Payment for this work shall be incidental to the unit price for asphalt.

ASPHALT CONCRETE COMPOSITE

Placement of asphalt concrete shall be by self-propelled pavers. Compaction of the asphalt concrete shall be by methods and equipment satisfactory to the Engineer.

Compaction of asphalt concrete shall be by the specified density method. The minimum density requirement is 92% (Rice Method) of specified density or to the satisfaction of the Engineer.

Asphalt concrete composite shall conform to the SDDOT Specifications for Class G, Asphalt Concrete. The top lift shall conform to Class G-2 for the mineral aggregate specifications. All lower lift(s) shall conform to Class G-1 for the mineral aggregate specifications unless otherwise noted or by direction of the Engineer. The surface course shall not exceed 2" in thickness when laid and compacted.

The asphalt cement used in the mixture shall be Performance Graded AASHTO Designation: PG64-22 or PG58-28 and shall conform to the current SDDOT Specifications. Certificates of compliance will be required on the asphalt concrete composite mix and the performance graded asphalt binder. The Engineer may accept the mixture on the basis of the certificate of compliance and visual inspection or may test the mixture for specification compliance.

Tack coat (SS-1h or CSS-1h) shall be applied between each lift of asphalt and along existing concrete and asphalt faces and any areas as determined by the Engineer at the rate of .05 gal/sq. yd. Payment for this work shall be incidental to the unit price for asphalt.

Intermediate and/or top lifts shall not be placed until the underlying layer has cooled to 175 degrees Fahrenheit or below. Also, if the contractor's paving operation is damaging the underlying asphalt, paving shall be suspended until the asphalt can withstand the paving operation or an alternate paving operation which does not cause damage is determined.

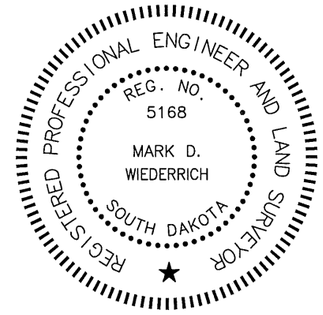
Longitudinal Joints:

1. Rolling operations for confined edges, the first pass adjacent to the confined edge, the compaction equipment shall be entirely on the hot mat 6" from the longitudinal joint.
2. Rolling operations for un-confined edges, the compaction equipment shall extend 6" beyond the edge of the mat.
3. Longitudinal joints of succeeding lifts should be offset approximately 6".
4. Longitudinal joints should be on the lane lines in the top lift. A paving plan will be required from the Contractor.

Seasonal Limitations:

1. Asphalt Concrete Composite will not be laid if the underling surface is wet or frozen.
2. Temperature for lower lifts shall be, at minimum, 35 degrees Fahrenheit, with a forecast of holding or rising temperatures.
3. Temperatures for top lift shall be, at minimum, 40 degrees Fahrenheit, with a forecast of holding or rising temperatures.
4. The Engineer may require tarping of loads during cool or windy conditions.

Asphalt concrete composite shall be paid for at the contract unit price per ton, furnished complete in place, and shall be full compensation for asphalt cement, mineral aggregate, tack coat (SS-1h or CSS-1h), all materials, equipment, labor and incidentals necessary to complete the work.



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
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MISCELLANEOUS CONCRETE

Concrete for storm structures, curb & gutter, valley gutters, sidewalk, driveway approaches, and outlet structures shall be Class M-6 as detailed in the SDDOT Standards Specifications Section 462.

Concrete shall be cured using a curing compound in accordance with section 821.1 of the 2004 SDDOT Standard Specification for Roads and Bridges. A ½" preformed expansion material shall be placed between the sidewalk and other concrete items (back of curb, driveways, existing sidewalks, etc.). Payment for this item shall be incidental and included in the unit price for the respective bid item.

GEOTEXTILE FABRIC FOR SUBGRADE STABILIZATION

Geotextile fabric has been included in the project to be installed as directed by the Engineer at locations where poor subgrade stability is encountered. The bid item "GEOTEXTILE FABRIC" has been established to pay for all labor, equipment and material to install the fabric.

Pay quantities for the geotextiles will be paid for at the contract price per square yard in place. Measurement for payment excludes the geotextile used for overlapping as well as seam overlaps.

Installation shall be in accordance with the manufacturer's recommendations. Overlap shall be a minimum of 24 inches. The end of the roll overlaps shall be three feet minimum.

The contractor shall not drive equipment directly on top of the geotextile. Should the geotextile be torn or punctured, the damaged area shall be repaired or replaced by the contractor at no expense to the owner. The repair shall consist of a patch of the same type of geotextile a minimum of three feet from the edge of any part of the damaged area.

Geotextile fabric shall conform to the requirements listed below. The contractor shall provide a certificate of compliance verifying that the material meets the specification prior to the installation of the fabric.

1. Wide Width Tensile Strength (ASTM D-4595)
   3600 lb/ft minimum
2. Wide Width Tensile Strength at 5% Strain (ASTM D-4595)
   1350 lb/ft minimum
3. Permittivity (ASTM D-4491)
   0.25 sec-1 minimum
4. UV Resistance at 500 hours (ASTM D-4355)
   70% minimum

The City has verified that the following products meet these specifications.

1. Mirafi HP465
2. Propex Getotex 3x3
3. Lumite GTF465

INSERT STEEL BAR IN CONCRETE PAVEMENT

The contractor shall furnish and insert steel bars where existing pavement meets new pavement as shown in plans and on standard plate no. 380.11. The steel bars shall be cut to the specified lengths by sawing and shall be free from burring or other deformations. Shearing is not permitted.

The diameter of the drilled holes in the existing pavement for the steel bars shall not be less than 1/8" nor more than 3/8" greater than the overall diameter of the steel bar. Holes drilled into existing pavement shall be located at mid-depth of the slab true and normal. The drilled holes shall be blown out with compressed air using a device that will reach the back of the holes to ensure that all debris or loose material has been removed prior to epoxy injection.

Epoxy resin adhesive shall be of the type intended for horizontal applications and shall conform to the requirements of ASTM C 881, Type IV, Grade 3 (Equivalent to AASHTO M235, Type IV, Grade 3).

Mix the epoxy resin as recommended by the manufacturer and apply by an injection method approved by the engineer. If an epoxy pump is used, it shall be capable of metering the components at the manufacturer's designated rate and be equipped with an automatic shut-off. The pump shall shut-off when any of the components are not being metered at the designated rate. Fill the drilled holes 1/3 to ½ full of epoxy or as recommended by manufacturer, prior to inserting steel bar. Care shall be taken to prevent epoxy from running out of the horizontal holes and prior to inserting steel bar. Rotate bar during insertion to eliminate voids and ensure complete bonding of the bar. Insertion of bars by dipping method is not allowed.

Estimated Bars:

#5 x 24" Epoxy Coated Deformed Bars = 88 Each
1 ¼" x 18" Epoxy Coated Smooth Steel Dowel = 61 Each

NONREINFORCED PORTLAND CEMENT CONCRETE PAVEMENT

PCC Pavement consists of constructing 6" and 9" pavement in accordance with typical sections and paving sheets which illustrate construction limits and joint layout.

PCC Pavement shall conform to Section 380 of the 2004 SDDOT Standard Specifications for Roads and Bridges. Exceptions and additions to this section are written in the following notes.

The coarse aggregate shall be crushed ledge rock.

The fine aggregate may require screening as determined by the Engineer.

The concrete for the nonreinforced PCC shall be of an approved job mix. The mix design shall be submitted three weeks prior to and approved prior to any concrete placement. The design mix shall meet a minimum 4000 PSI compressive strength in 28 days.

Concrete used in Portland cement concrete pavement shall have a minimum cement content of 510 pounds per cubic yard and a fly ash content of 112 pounds per cubic yard. Fly ash shall be class F or class C and shall meet the requirements of Section 605 of the SDDOT Standard Specifications for Roads and Bridges.

The contractor may elect not to use fly ash in the concrete for pavement. The concrete shall than have a minimum cement content of 600 pounds per cubic yard. Any additional costs associated with this or other mix designs shall be at the expense of the contractor. Any changes from the original submitted and approved mix design, shall be approved by the Engineer prior to its use.

The surface tolerance shall be 1/4" in ten feet instead of 1/8" in ten feet as per standard specification. The surface shall be free from a noticeable "chatter" or "ripple or washboard" ride. Failure to meet these specifications may result in the contractor being required to diamond grind to a satisfactory ride and/or could be subject to a payment adjustment as deemed reasonable by the Engineer.

A metal tine finish will not be required.

In lieu of an automatic subgrader operating from a preset line, a motor grader or other suitable equipment may be used to bring the gravel cushion or base course to final grade prior to placement of concrete.

There will be no direct payment for trimming of the gravel cushion or base course for PCC Pavement. The trimming will be considered incidental to the related items required for PCC Pavement.

The surface of the mainline paving shall be an Engineer approved Astroturf finish or carpet drag finish. A self-propelled machine is not required to pull either of the approved carpets.

All paving shall be cured with a white pigmented linseed oil base emulsion compound. Application of the curing compound shall be in accordance with section 380.3.P.2 of the 2004 SDDOT Standard Specifications for Roads and Bridges. Curing compound material shall be in accordance with section 821.1.D.

DETECTABLE WARNING PANELS

The Contractor shall supply detectable warning panels which conform to the list of approved products shown below. If the Contractor wants to substitute a product not shown on the list, a written request must be submitted to the Engineer prior to construction for approval. In no case will the stamping of concrete be allowed as a method of creating the domes on the tactile warning panels.

Approved Products
Manufacturer: Hand and Spirit, Inc.
Type: Cast-in-place-detectable warning panel
Local Supplier: Bierschbach Equipment and Supply

Manufacturer: Armor-Tile, Inc.
Type: Cast-in-place tactile/detectable warning surface tile
800-682-2525

Manufacturer: ADA Solutions, Inc.
Type: Cast-in-place tactile/detectable warning tile
Local Supplier: Dakota Supply Group

Manufacturer: Armor-Tile, Inc.
Type: Replaceable cast-in-place tactile system
Local Supplier: Brock White

PCC PAVEMENT MEDIAN NOSES

This item includes all materials, labor, equipment and incidentals necessary to construct PCC median noses along the project as shown in the pavement layout/curb & gutter sheets.

COLOR FOR CONCRETE SIDEWALK

The add alternate item to add color to concrete sidewalk shall include the following materials and labor:

Color shall be as listed below or engineer approved equal:

Match Solomon color 306 Toffee (dark brown)

The contractor shall prepare samples of color listed above and coordinate a meeting on site with the Engineer, Landscape Architect and Owner to confirm or adjust the color as specified.

The color shall be integral. The concrete surface shall be broom finished.

Two coats of non-yellowing acrylic curing and sealing compound shall be applied to the surface of the colored concrete. Poly, burlap or white-pigmented curing compounds are not allowed. If applied by spray method, spraying must be done in two passes in opposite directions and rolled to ensure complete coverage. The curing and sealing compound shall be as listed below or engineer approved equal:

CLEAR GUARD Cure and Seal
Butterfield Color
Distributor: Construction Products & Consultants, Inc.
Phone: 605.332.4991

All costs for furnishing, handling and applying the curing and sealing compound and liquid integral color shall be included in the contract unit price for the items Colored Concrete Sidewalk, 5" and Colored Concrete Median Pavement 6".

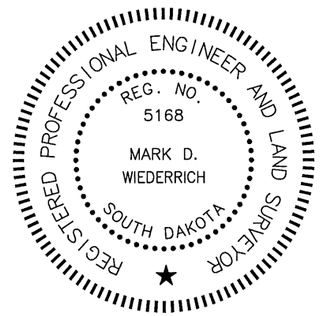
BOLLARD/CHAIN BARRIER ASSEMBLY

The contractor shall install a bollard and chain assembly at the four locations shown to prevent the public from using the snow removal access pavements to exit the parking lot. The bollards shall be as per Bollard, 4" detail with the exception that a heavy duty hook shall be welded or threaded to the bollard 4" from the top for hooking the chain barrier.

The contract unit price per each for the item "Bollard/Chain Barrier Assembly" shall include furnishing and installing two bollards at locations shown and salvaged barrier chain cut and installed on bollard hooks across the approach pavement opening. Chain sag shall provide a minimum chain clearance of 12" from finished grade.

PAVEMENT MARKINGS

Pavement marking material shall meet the specifications for Traffic Paint as per the City of Sioux Falls Supplemental Specifications Section 633.2.A. Glass beads shall meet the requirements of 633.2.C. Construction requirements shall conform to section 633.3 of the Sioux Falls Supplemental Specifications.



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

DESIGNED BY: MDW
DRAWN BY: MDW
CHECKED BY: MDW
REVISIONS:
FILE: 216710_General Notes.doc
DATE: 3/17/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
D5
OF
D6

TRAFFIC SIGNAL AND LIGHTING NOTES

GENERAL

Grounding conduits and the end points of continuous steel conduit bounded systems shall have ground bushings.

Lighting in this section refers to public street lighting on Minnesota Avenue. Parking lot and Jaycee Lane lighting is covered under **Section "N"**.

UTILITIES

The Contractor shall refer to the list of utility owners previously detailed in the plan notes. The contractor shall schedule the electrical company(s) to get the power disconnected prior to removals and to get reconnected.

CONDUIT

Conduits shall be installed to a minimum depth of 24". Conduit ends shall be capped or sealed as shown on the standard plates. Rigid steel conduit for signal wiring shall be galvanized and meet the requirements of SDDOT Specifications and UL 651 and UL 514. Steel conduit ends shall be threaded and capped. Each section of conduit shall bear the underwriter's laboratory's label. The work shall be accomplished by a licensed electrician in conformance with applicable codes of the State of South Dakota. Refer to the electrical plan sheets for quantities and locations. Plan shown quantities shall be the basis of payment for this work unless changes are made in the field.

All connections to existing conduit, including any necessary fittings shall be included in the contract unit price per foot for the conduit.

All conduit borings shall be included in the contract unit price per foot for the various conduit items.

#10 AWG Tracer wire shall be installed in all traffic interconnect regardless of type.

#14 AWG Tracer wire shall be installed in all lighting conduit not carrying street light wire.

CONDUIT INSTALLATION

A minimum of 2" Rigid Steel Conduit shall be used as designated in the plans for all conduits not designated as traffic interconnect but carrying traffic signal cables unless tying to existing conduit. Lighting conduit shall be a minimum of 2" Sch. 80 under all roadways. The contractor shall furnish and install "innerduct" for traffic interconnect conduit as designed in the plans. Traffic Interconnect "innerduct" conduit shall be sleeved in a steel conduit large enough to incorporate the innerduct under all roadways (from back of curb to back of curb) or as shown in the plans. Innerduct conduit shall be schedule 40 high density polyethylene. The innerduct conduit for traffic interconnect shall be orange in color and longitudinally ribbed on the inside wall. **Contractors bid for "2" Innerduct, SDR 13.5" shall include furnishing and installing the innerduct including pull rope, all work to seal the traffic interconnect conduit within the junction box, and the steel conduit needed to sleeve the innerduct on roadways. All innerduct installed with this project with or without fiber optic cables shall be sealed with Tyco Electronics inflatable sealing system TDUX, or approved equal.** The contractor shall not use machines requiring flowing water for installation of conduit under streets or roadways unless specifically permitted by the engineer.

STREET LIGHT FOOTINGS

The Contractor is responsible for installing all street light footings according to the plans and standard details. All labor and materials needed to construct the footings shall be included in the contract unit price per foot for "2' Diameter Footing". Refer to standard detail 635.50 (Sioux Falls Street Light Footing Standard). Anchor Bolts will be supplied by the City of Sioux Falls.

TRAFFIC SIGNAL FOOTINGS

The Contractor is responsible for installing 3 traffic signal footings as shown on the plan sheets. All signal pole footings are to be installed to the depth and diameter as shown in the Footing Data Table. All signal pole footings shall be constructed with permanent casing in accordance with the Drilled Shaft Construction Method as outlined in section 465 of the Standard Specifications for Roads and Bridges, 2004 Edition, except section 465.3.A will not be necessary. All labor and materials needed to construct the footings including but not limited to permanent casing, concrete, and reinforcing steel shall be included in the contract unit price per foot for "2.5' Diameter Footing".

TABLE OF FOOTING DATA

Minnesota Avenue and North Jaycee Lane

Site Designation	Footing Diameter	*Footing Depth	**Spiral Diameter	**Spiral Length	Vertical Reinforcement
SW Quadrant	2'-6"	14'	2'-2"	112'-0"	12-#7 X 13'-6"
SE Quadrant	2'-6"	12'	2'-2"	98'-6"	12-#7 X 11'-6"
NE Quadrant	2'-6"	14'	2'-2"	112'-0"	12-#7 X 13'-6"

*Footing Depth shall be below ground level.
**The size of all spirals shall be #3.
*** See Standard Plate 635.12 for footing details.

SIGNAL FOOTING ANCHOR BOLTS

The anchor bolts (12 total) for the signal footings at North Jaycee Lane and Minnesota Avenue shall be supplied by the contractor. The contractor shall provide anchor bolt that are 1-1/2 inches by 60 inches. The anchor bolt material shall meet ASTM specifications as specified in the Traffic Signal Supplemental Specifications by the City of Sioux Falls. The supplemental specifications for traffic signals, roadway lighting, and fiber optic cable can be viewed online at:
http://www.siouxfalls.org/PublicWorks/engineering/construction_mgmt/specs_policies_manuals

CONTRACTOR FURNISHED TRANSFORMER BASE

The contractor is responsible for furnishing and installing three (3) transformer bases at the intersection of North Jaycee Lane and Minnesota Avenue. The transformer bases shall be manufactured by Millerbernd. The Millerbernd Transformer Base No. is 390A117-1-A572-GV. The cost to furnish and install the transformer bases shall be at the contract unit price per each for "Furnish and Install Transformer Base".

REMOVE 50' LUMINAIRE POLE FOR RESET

The contractor is responsible for removing and resetting one existing 50' luminaire poles as shown on the grading plan sheet. The removal of the luminaire poles shall be at the contract unit price per each for "Remove 50' Luminaire Pole for Reset".

STREET LIGHT FOOTING ANCHOR BOLTS

Anchor bolts for the new street light footing for the 50' reset luminaire pole on Minnesota Avenue shall be considered incidental to the unit price for the street light footing.

STREET LIGHTING SYSTEM

The contractor shall install all conduit, junction boxes and footings for construction of the Street Light System in accordance with the standard details and at locations shown on the plans. The Contractor shall be responsible to warranty all materials and workmanship as per the general conditions and supplemental specifications.

The installation of the City furnished street light poles (luminaire poles including arms, luminaires, bulbs, photo eye, and luminaire wire (14/2 wire) from base to luminaire) shall be at the contract unit price per each for "Install Luminaire Pole" under its respective height and type.

Contractor shall pull all wires through conduit, junction boxes, and footings to be paid under the bid item "Install Street Light Wire" per linear foot.

Light department will make line to line connection in each light base and (or) junction boxes. Light department will also de-energize lights to be removed as specified in the plans.

JUNCTION BOXES

The contractor is responsible for furnishing and installing the junction boxes required for both the traffic and lighting departments as shown in the plans. Junction Boxes shall be at the contract cost per each for 12" Junction Box, 18" Junction Box, 24" Junction Box, and 30" Junction Box regardless of the owner. The appropriate designation on the lid of the junction box shall be according to the utility owner (Electrical or Traffic) as shown on the standard plates and in the tables located in Section B.

SEE SECTION "M" FOR PERMANENT SIGN NOTES

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

DESIGNED BY: MDW
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FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
D6
OF
D6

TRAFFIC CONTROL

SEQUENCE OF OPERATIONS

The following Sequence of Operation shall be followed by the Contractor unless an alternate Sequence of Operations is submitted in writing and approved by the Engineer.

PHASE 1A

1. Exclusive Phase 1A work includes the construction of the south extension of the long term parking lot. Construction will begin at the south edge of the asphalt overlay limits.
2. Install the overflow parking lot approach, construction fence, sidewalk, and barrels for the overflow parking lot and rental car parking expansion at the beginning of Phase 1A. Stockpile necessary signs on site for use by Standard Parking when needed for overflow parking.
3. The proposed curb and gutter at the temporary gravel crossing location and removal of the existing parking lot light shall be performed at the beginning of Phase 1A work to allow for complete installation of Phase 1A traffic control.
4. Installation of the lane closure and construction of the right turn lane and work on the Minnesota Ave & Jaycee Lane intersection may be completed at any time during Phase 1A or Phase 1B.
5. Storm sewer work adjacent to the temporary gravel crossing shall be completed in Phase 1A to allow for shifting of the access road to the south for Phase 1B work.
6. Perform water main tie-in next to terminal building and crossing of Jaycee Lane to parking lot area. Crossing shall be done half at a time to allow for maintenance of traffic on Jaycee Lane.

PHASE 1B

1. Upon completion of storm sewer and asphalt work from Phase 1A, the temporary gravel crossing from Phase 1A shall be shifted to the south to allow for remaining Phase 1B asphalt work to be completed.
2. Upon completion of the south extension of the long term parking lot in Phase 1A the westernmost rows of parking spaces in the long term overflow area can be removed from use and Phase 1B construction work in the area can commence.
3. The right turn lane and intersection tie-in of Minnesota Avenue & Jaycee Lane shall be completed in Phase 1B.
4. The proposed sidewalk route to the terminal building and interior parking lot curb and gutter, base course, proposed asphalt paving, and asphalt overlay for the north long term parking lot shall be completed during Phase 1B.
5. Install the east half of 18" storm sewer crossing on Jaycee Lane west of the parking lot entrance plaza.

PHASE 2

1. Install temporary gravel crossing over new curb and gutter for vehicle access to north long term parking lot.
2. Finish the construction of exit plaza, entrance plaza, and Minnesota Ave. & Jaycee Lane intersection.
3. Install traffic control for Minnesota Avenue lane closure and complete modifications to the median bull-nose on the south side of the intersection.
4. Allow Standard Parking vendors 2 weeks to install entrance & exit revenue control equipment and buildings.

PHASE 3

1. Close down existing second chance entrances for short and long term parking and open up the new entrance plaza for all parking.
2. Maintain temporary gravel crossing at location of existing parking lot exit plaza for contractor ingress/egress.
3. Upon completion of long term parking lot work in Phase 3, complete the curb and gutter work required to remove the old parking lot exit road onto Minnesota Ave.
4. Construct the second chance entrances for short and long term parking lots.
5. Begin work on the perimeter curb and gutter and sidewalk for the proposed short term parking lot.
6. Construct the south long term parking lot.
7. Finish the construction of the Phase 3 landscaping and detention ponds.

PHASE 4

1. Open all of the long term parking lots for use.
2. Open the re-circulation perimeter road around the parking lot.
3. Install lane closure on Minnesota Ave. and install curb and gutter to close median opening.
4. Close the short term entrance plaza.
5. Finish construction of the terminal drop-off lanes and short term parking lot.
6. Allow Standard Parking vendors one week to install second chance revenue control equipment.

PHASE 5

1. Open the new parking lot for full use.
2. Install lane tapers and barrels around work areas for the west half of the storm sewer crossing Jaycee Lane west of the entrance plaza and for the asphalt mill/overlay in front of the terminal building.

SPECIAL CONDITIONS

1. The contractor may use the open field north of the cell phone lot at the NW corner of the Jaycee Lane & Minnesota Avenue intersection for staging operations and materials storage.
2. The Contractor is required to maintain a minimum of one drop-off lane and one 12 foot driving lane in front of the terminal building at all times during construction.
3. The Contractor shall coordinate with the Engineer on clearing of parking lots prior to commencement of proceeding work phase.
   - 3.1. Barrels and special warning signs shall be installed two weeks prior to the start of Phase 1A work to allow existing parked cars to clear from the proposed work area.
   - 3.2. The contractor shall work with the Engineer as phases proceed to install required signage in advance of the next phase to allow existing parked cars to clear from the next phase work area.
   - 3.3. Parked cars remaining in the proposed work areas will be moved by the Airport to a designated location.
   - 3.4. The Engineer will place brochures at parking lot entrances to notify travelers of designated parking areas for each phase of work.

TIME PROVISIONS

1. The successful Bidder hereby agrees to commence and complete the work under this contract within the time schedule indicated and further agrees to pay as liquidated damages the sum as shown for each consecutive calendar/working day thereafter as provided in the following schedule. Schedule based on Notice of Award on or before April 14, 2011 and issuance of the Notice to Proceed on or before April 18, 2011 .

2. The work shall be commenced within ten (10) consecutive calendar days after the date of issuance of the Notice to Proceed. **The project shall be substantially completed with all project phases entirely open and usable for the Owner and public (including all pedestrian access and lighting) by October 7, 2011.** The only remaining work allowed beyond the substantial completion date is landscaping, irrigation and punch list work. Perimeter parking stalls adjacent to landscape work shall be allowed to be closed off to public during landscape and irrigation work.

Additionally, the following interim completion dates shall apply to the project:

Phase	Interim Completion Date	Liquidated Damages
Jaycee Ln Storm Sewer Crossing	**5 Working Days**	**$500/Working Day**
Jaycee Ln Water Main Crossing	**5 Working Days**	**$500/Working Day**
Jaycee Lane Mill & Overlay	**5 Working Days**	**$500/Working Day**
SB Minnesota Ave Lane Closure and Jaycee Lane Intersection	**15 Working Days**	**$500/Working Day**
All other Minn Ave Lane Closures	**5 Working Days Each**	**$500/Working Day**

All construction contract items (including punch list items) must be completed and finalized on or before **November 18, 2011**. If the Contractor does not meet these dates for any phase, liquidated damages will be assessed per calendar day for every day beyond these dates.

All required work shall be completed and finalized in accordance with Section 90, subsection 9 of the General Provisions.

GENERAL MAINTENANCE OF TRAFFIC

1. Installation of traffic control shall conform to the Manual on Uniform Traffic Control Devices (MUTCD) 2009 Edition unless otherwise modified in the plans.
2. Storage of vehicles and equipment shall be within the designated work limits for each phase of work. No employee vehicles or contractor equipment is allowed to be parked or stored in any designated visitor parking areas during construction.
3. Indiscriminate driving and parking of vehicles within the right-of-way or airport property will not be permitted. Any damage to the vegetation, surfacing, embankment and existing signs resulting from such indiscriminate use shall be repaired and/or restored by the Contractor, at no expense to the Airport Authority, and to the satisfaction of the Engineer.
4. All breakaway sign supports shall comply with FHWA NCHRP 350 crash-worthy requirements. The Contractor shall provide post installation details at the pre-construction meeting for all steel post breakaway sign support assemblies.
5. Installation, maintenance, relocation and removal of Type I and II barricades, safety fence, cones, vertical panels, drums, barricade warning lights, watchmen, tubular markers and flags shall be included in the lump sum price bid for “Traffic Control Miscellaneous”.
6. The Contractor or designated traffic control subcontractor shall ensure the adequacy, legibility, and reflectivity of each sign and device. Sign washing shall be considered incidental to Traffic Control and required as directed by the Engineer.

REMOVAL OF PAVEMENT MARKINGS

Pavement markings which conflict with temporary pavement markings, channelizing devices or new pavement markings shall be removed by the Contractor. Masking of pavement marking will not be allowed. The method of removal shall be non-destructive to pavements which will remain in place at project completion and shall be approved by the Engineer. Pavement marking removal shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

PEDESTRIAN TRAFFIC

The Contractor will be required to maintain pedestrian access from the airport parking lot to the terminal building at all times during construction. Pedestrian access shall be ADA accessible. Access can either be maintained on concrete sidewalk or on a temporary boardwalk. This work may include but is not limited to sawing existing sidewalk to leave half in place, staging sidewalk removal and construction to maintain access, installing safety fence around work areas, and construction and removal of temporary boardwalk. The Contractor shall determine the actual location of temporary access during construction and shall be approved by the Engineer. Payment for all work and associated materials shall be incidental to the contract lump sum price for “Traffic Control, Miscellaneous”.

TEMPORARY GRAVEL CROSSINGS

Temporary Gravel Crossings shall be used and placed at locations as shown in the Traffic Control Plans and/or as determined by the Engineer during construction. An estimated quantity of 104 tons of base course has been included in the plans for gravel crossings. Base course shall be salvaged from the temporary crossings and be reused for roadbed placement. Temporary gravel crossings shall be paid at the contract unit price for “Aggregate Base Course” and shall be full compensation for installation, maintenance and salvage of material.

CHANNELIZING DEVICES

In transition and taper sections, channelizing devices shall be reflectorized drums. In tangent sections, 42” tall grabber cones may be used instead of reflectorized drums. Payment for channelizing devices shall be incidental to the lump sum bid price for “Traffic Control, Miscellaneous”.

Channelizing devices used for lane closures shall be spaced at a maximum of 25' for tapers and 50' on tangents unless otherwise shown. Channelizing devices used to enclose work areas in the parking lot shall be spaced a maximum of 15' and shall be be spaced as required in the field to prevent vehicles from entering phase work zones.

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: E.A.
DRAWN BY: E.A.
CHECKED BY: MDW
ACAD FILE: 210710_Traffic Control.dwg
DATE: 3/11/2011
REVISIONS:
BY: DATE:
BY: DATE:

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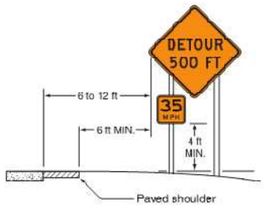
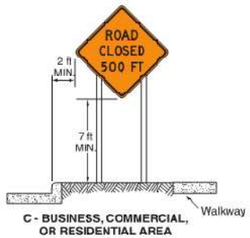
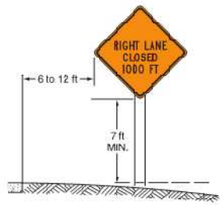
A - RURAL AREA



B - RURAL AREA WITH ADVISORY SPEED PLAQUE



C - BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA

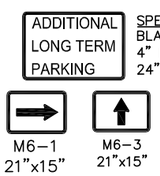


D - BUSINESS, COMMERCIAL, OR RESIDENTIAL AREA (WITHOUT CURB)

ROAD TYPE	DISTANCE BETWEEN SIGNS (A, B, C)	TAPER LENGTH (L)
URBAN (LOW SPEED) "JAYCEE LANE"	200'	180
URBAN (HIGH SPEED) "MINNESOTA AVE"	350'	320

TRAFFIC CONTROL SIGN TABLE

			PHASE 1A	PHASE 1B	PHASE 2	PHASE 3	PHASE 4	PHASE 5	MAX REQUIRED	UNITS PER SIGN	UNITS
SIGN CODE	SIGN SIZE	DESCRIPTION	NUMBER OF SIGNS								
***	8FT SINGLE SIDED	TYPE 3 BARRICADE	7	7	7	9	5	3	9	40	360
G20-2	36"x18"	END ROAD WORK	2	2	2	2	2		2	17	34
M6-1	21"x15"	DIRECTION ARROW	2	2	1				2	5	10
M6-3	21"x15"	DIRECTION ARROW			1				1	5	5
R5-1	18"X18"	DO NOT ENTER	11	1					11	5	55
R11-2	48"x30"	ROAD CLOSED	2	2	2	2		1	2	27	54
W4-2	48"x48"	LANE ENDS	2	2	1	2	1	1	2	34	68
W8-6	48"x48"	TRUCK CROSSING	2	2	2	2			2	34	68
W20-1	48"x48"	ROAD WORK AHEAD	1	1	1	2			2	34	68
W20-5	48"x48"	LEFT/RIGHT LANE CLOSED AHEAD	2	2	1	2	1	1	2	34	68
										TOTAL:	790
***		ARROW PANEL	1	1	1	2			2	EACH	2
SPECIAL SIGNS											
SPECIAL	36"x18"	USE OVERLOW PARKING LOT CASH ONLY	3	3	3	3			3	18	54
SPECIAL	24"x24"	OVERFLOW PARKING	1	1	1	1			1	16	16
SPECIAL	36"x24"	ADDITIONAL LONG TERM PARKING	2	2	2				2	24	48
										TOTAL:	118
TRAFFIC CONTROL MISCELLANEOUS			CONES, DRUMS, WATCHMAN, TUBULAR MARKERS, FLAGS, FLASHERS								1 L.S.
			PHASE 1A	PHASE 1B	PHASE 2	PHASE 3	PHASE 4	PHASE 5	OVERFLOW PARKING LOT		TOTAL:
SAFETY FENCE			0	0	676	978	1019	0	1170		3843



SPECIAL SIGN
BLACK ON ORANGE
4" LETTERING/SPACING
24"X36"

M6-1
21"x15"

M6-3
21"x15"

SPECIAL
24"x24"
WHITE ON BLACK

SPECIAL
36"x18"
WHITE ON BLACK

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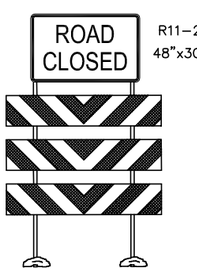


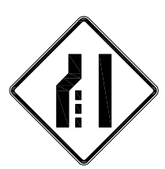
R11-2
48"x30"

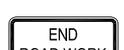
W8-6
48"x48"

W20-1
48"x48"

R5-1
18"x18"

W4-2
48"x48"





G20-2
36"x18"

W20-5L/R
48"x48"

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Traffic Control.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
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E9

TRAFFIC CONTROL
PHASE 1A

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

W20-1 48"x48" ROAD WORK AHEAD
W20-5R 48"x48" RIGHT LANE CLOSED AHEAD
W4-2 48"x48"
END ROAD WORK G20-2 36"x18"
ARROW PANEL
C
B
A
L
OPTIONAL CONTRACTOR STAGING & STORAGE AREA (ALL PHASES)
LOT RESERVED FOR RENTAL CAR PARKING (PHASE 1A TO PHASE 3)
JAYCEE LANE
MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
W8-6 48"x48" TRUCK CROSSING
CONTRACTOR EGRESS
ROAD CLOSED R11-2 48"x30"
W8-6 48"x48" TRUCK CROSSING
W20-5L 48"x48" LEFT LANE CLOSED AHEAD
W4-2 48"x48"
ASPHALT OVERLAY LIMITS
TEMPORARY GRAVEL CROSSING OVER CURB
30'
ADDITIONAL LONG TERM PARKING
M6-1 21"x15"
SPECIAL SIGN BLACK ON ORANGE 4" LETTERING/SPACING 24"X36"
RECIRCULATION ROAD
PHASE 1A PARKING STALLS TO REMAIN OPEN = 962
ROAD CLOSED R11-2 48"x30"
G20-2 36"x18" END ROAD WORK
WATER MAIN WORK SHALL BE COMPLETED ONE HALF AT A TIME TO MAINTAIN A MINIMUM OF ONE 12' LANE ON JAYCEE LANE AT ALL TIMES DURING CONSTRUCTION.
OVERFLOW PARKING LOT
OVERFLOW PARKING AREA SEE SHEET E9 FOR DETAILS

LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

SCALE: 1"=150'
0 75 150 FT

DO NOT ENTER R5-1 (18"x18") MOUNTED ON BARREL

THE SYMBOL * SHOWS LOCATIONS WHERE "DO NOT ENTER" SIGNS SHALL BE PLACED PRIOR TO CONSTRUCTION FOR CLEARING OF PARKED VEHICLES FROM WORK AREAS.

AFTER THE WORK AREA HAS BEEN CLEARED OF ALL PARKED VEHICLES FOR THE PHASE, THESE SIGNS MAY BE REMOVED AND GAPS IN BARRELS/CONES CLOSED.

OVERFLOW PARKING SIGNS

(A) USE OVERFLOW PARKING LOT CASH ONLY — SPECIAL 36"x18" WHITE ON BLACK

(B) OVERFLOW PARKING — SPECIAL 24"x24" WHITE ON BLACK

NOTES:
SEE SHEET E9 FOR DETAILS ON OVERFLOW PARKING LOT LAYOUT

SIGNS TO BE INSTALLED ON A-FRAME STAND AND STOCKPILED ON SITE. SIGNS WILL BE SET BY STANDARD PARKING EMPLOYEES AS NEEDED

SIGNS SHALL BE STORED ON SITE AND THE OVERFLOW PARKING LOT SHALL BE MAINTAINED FROM PHASE 1A THROUGH PHASE 3.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: E.H. DATE:
DRAWN BY: E.H. ACAD FILE: 210710_Traffic Control.dwg
CHECKED BY: MDW DATE: 3/11/2011 BY: DATE:
REVISIONS: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
E3
OF
E9

TRAFFIC CONTROL
PHASE 1B

W20–5R 48"x48" — RIGHT LANE CLOSED AHEAD

W4–2 48"x48"

G20–2 36"x18" — END ROAD WORK

ARROW PANEL

W20–1 48"x48" — ROAD WORK AHEAD

OPTIONAL CONTRACTOR STAGING & STORAGE AREA (ALL PHASES)

LOT RESERVED FOR RENTAL CAR PARKING (PHASE 1A TO PHASE 3)

JAYCEE LANE

W8–6 48"x48" — TRUCK CROSSING

MINNESOTA AVENUE (NB)

MINNESOTA AVENUE (SB)

CONTRACTOR EGRESS

R11–2 48"x30" — ROAD CLOSED

W8–6 48"x48" — TRUCK CROSSING

W20–5L 48"x48" — LEFT LANE CLOSED AHEAD

W4–2 48"x48"

ASPHALT OVERLAY LIMITS

ASPHALT OVERLAY LIMITS

TEMPORARY GRAVEL CROSSING OVER CURB

ASPHALT OVERLAY LIMITS

RECIRCULATION ROAD

R11–2 48"x30" — ROAD CLOSED

G20–2 36"x18" — END ROAD WORK

ADDITIONAL LONG TERM PARKING

M6–1 21"x15"

SPECIAL SIGN
BLACK ON ORANGE
4" LETTERING/SPACING
24"X36"

ADDITIONAL LONG TERM PARKING

OVERFLOW PARKING LOT

OVERFLOW PARKING AREA
SEE SHEET E9 FOR DETAILS

R5–1 (18"x18") MOUNTED ON BARREL

THE SYMBOL * SHOWS LOCATIONS WHERE "DO NOT ENTER" SIGNS SHALL BE PLACED PRIOR TO CONSTRUCTION FOR CLEARING OF PARKED VEHICLES FROM WORK AREAS.

AFTER THE WORK AREA HAS BEEN CLEARED OF ALL PARKED VEHICLES FOR THE PHASE, THESE SIGNS MAY BE REMOVED AND GAPS IN BARRELS/CONES CLOSED.

OVERFLOW PARKING SIGNS

(A) USE OVERFLOW PARKING LOT CASH ONLY — SPECIAL 36"x18" WHITE ON BLACK

(B) OVERFLOW PARKING — SPECIAL 24"x24" WHITE ON BLACK

NOTES:
SEE SHEET E9 FOR DETAILS ON OVERFLOW PARKING LOT LAYOUT

SIGNS TO BE INSTALLED ON A–FRAME STAND AND STOCKPILED ON SITE. SIGNS WILL BE SET BY STANDARD PARKING EMPLOYEES AS NEEDED

SIGNS SHALL BE STORED ON SITE AND THE OVERFLOW PARKING LOT SHALL BE MAINTAINED FROM PHASE 1A THROUGH PHASE 3.

LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

PHASE 1B PARKING STALLS TO REMAIN OPEN = 1004

SCALE: 1"=150'
0 75 150 FT

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 210710_Traffic Control.dwg
DATE: 3/11/2021
BY: DATE:
BY: DATE:

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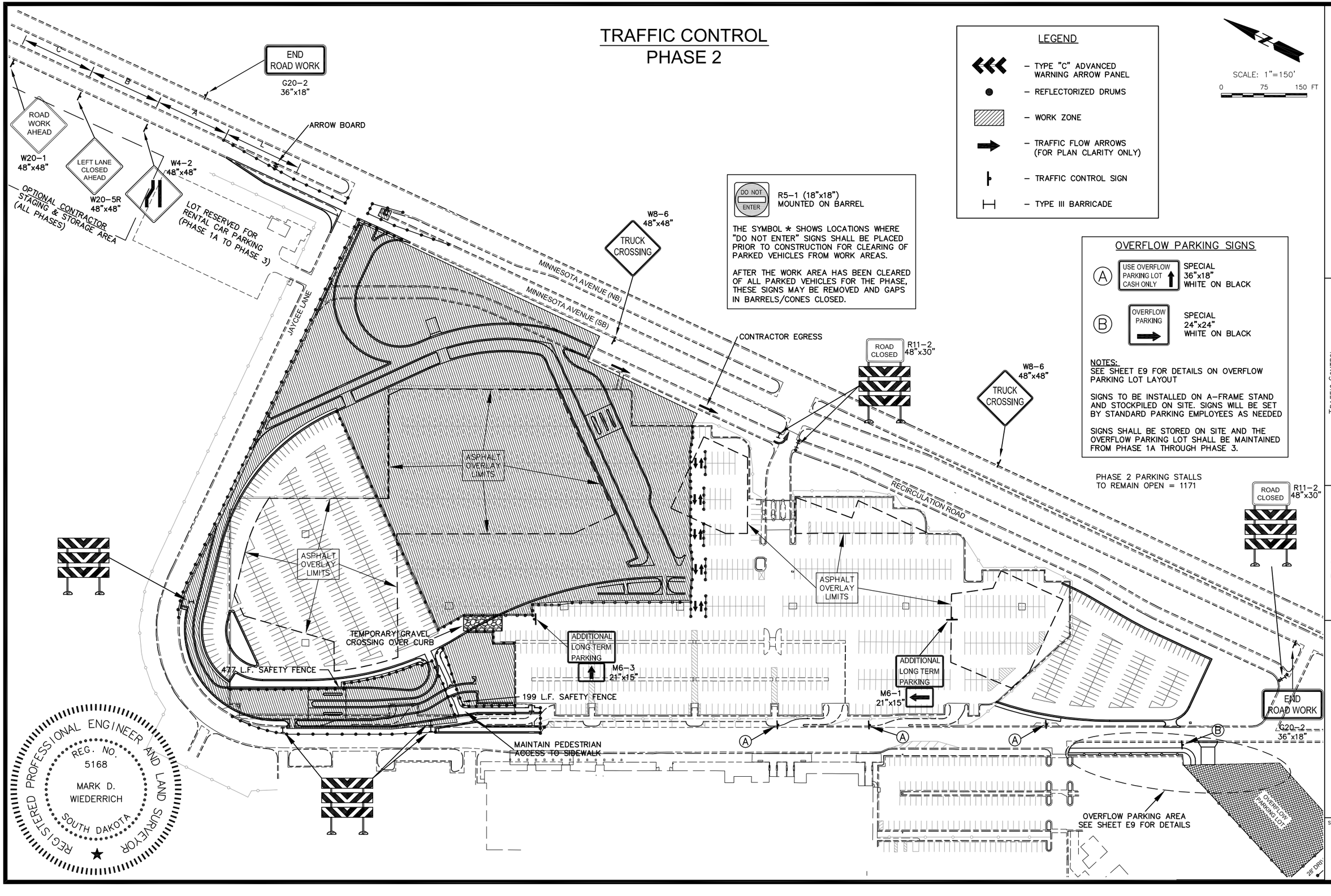
SHEET NO.
E4
OF
E9

TRAFFIC CONTROL
PHASE 2



LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

SCALE: 1"=150'
0 75 150 FT

DO NOT ENTER — R5-1 (18"x18") MOUNTED ON BARREL

THE SYMBOL * SHOWS LOCATIONS WHERE "DO NOT ENTER" SIGNS SHALL BE PLACED PRIOR TO CONSTRUCTION FOR CLEARING OF PARKED VEHICLES FROM WORK AREAS.

AFTER THE WORK AREA HAS BEEN CLEARED OF ALL PARKED VEHICLES FOR THE PHASE, THESE SIGNS MAY BE REMOVED AND GAPS IN BARRELS/CONES CLOSED.

OVERFLOW PARKING SIGNS

(A) USE OVERFLOW PARKING LOT CASH ONLY — SPECIAL 36"x18" WHITE ON BLACK

(B) OVERFLOW PARKING — SPECIAL 24"x24" WHITE ON BLACK

NOTES:
SEE SHEET E9 FOR DETAILS ON OVERFLOW PARKING LOT LAYOUT

SIGNS TO BE INSTALLED ON A-FRAME STAND AND STOCKPILED ON SITE. SIGNS WILL BE SET BY STANDARD PARKING EMPLOYEES AS NEEDED

SIGNS SHALL BE STORED ON SITE AND THE OVERFLOW PARKING LOT SHALL BE MAINTAINED FROM PHASE 1A THROUGH PHASE 3.

PHASE 2 PARKING STALLS TO REMAIN OPEN = 1171

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Traffic Control.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

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SHEET NO.
E5
OF
E9

TRAFFIC CONTROL
PHASE 3

END ROAD WORK
G20-2
36"x18"

ROAD WORK AHEAD
W20-1
48"x48"

W20-5R
48"x48"
RIGHT LANE CLOSED AHEAD

W4-2
48"x48"

W8-6
48"x48"
TRUCK CROSSING

LOT RESERVED FOR RENTAL CAR PARKING (PHASE 1A TO PHASE 3)

OPTIONAL CONTRACTOR STAGING & STORAGE AREA (ALL PHASES)

JAYCEE LANE

MINNESOTA AVENUE (NB)

MINNESOTA AVENUE (SB)

LANDSCAPE WORK - PHASE 3

R11-2
48"x30"
ROAD CLOSED

ARROW PANEL

CONTRACTOR INGRESS/EGRESS

TEMPORARY GRAVEL CROSSING OVER CURB

RECIRCULATION ROAD

978 L.F. SAFETY FENCE

ASPHALT OVERLAY JOINTS

LOT CLOSED DURING PHASE 3

REMOVE EXISTING PAVEMENT MARKINGS

OVERFLOW PARKING LOT

28' DRIVING LANE

PHASE 3 PARKING STALLS TO REMAIN OPEN = 1099

DO NOT ENTER
R5-1 (18"x18")
MOUNTED ON BARREL

THE SYMBOL * SHOWS LOCATIONS WHERE "DO NOT ENTER" SIGNS SHALL BE PLACED PRIOR TO CONSTRUCTION FOR CLEARING OF PARKED VEHICLES FROM WORK AREAS.

AFTER THE WORK AREA HAS BEEN CLEARED OF ALL PARKED VEHICLES FOR THE PHASE, THESE SIGNS MAY BE REMOVED AND GAPS IN BARRELS/CONES CLOSED.

LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

SCALE: 1"=150'
0 75 150 FT

OVERFLOW PARKING SIGNS

(A) USE OVERFLOW PARKING LOT CASH ONLY — SPECIAL 36"x18" WHITE ON BLACK

(B) OVERFLOW PARKING — SPECIAL 24"x24" WHITE ON BLACK

NOTES:
SEE SHEET E9 FOR DETAILS ON OVERFLOW PARKING LOT LAYOUT

SIGNS TO BE INSTALLED ON A-FRAME STAND AND STOCKPILED ON SITE. SIGNS WILL BE SET BY STANDARD PARKING EMPLOYEES AS NEEDED

SIGNS SHALL BE STORED ON SITE AND THE OVERFLOW PARKING LOT SHALL BE MAINTAINED FROM PHASE 1A THROUGH PHASE 3.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

ACAD FILE: 210710_Traffic Control.dwg
DATE: 3/11/2021

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
BY: DATE:
BY: DATE:

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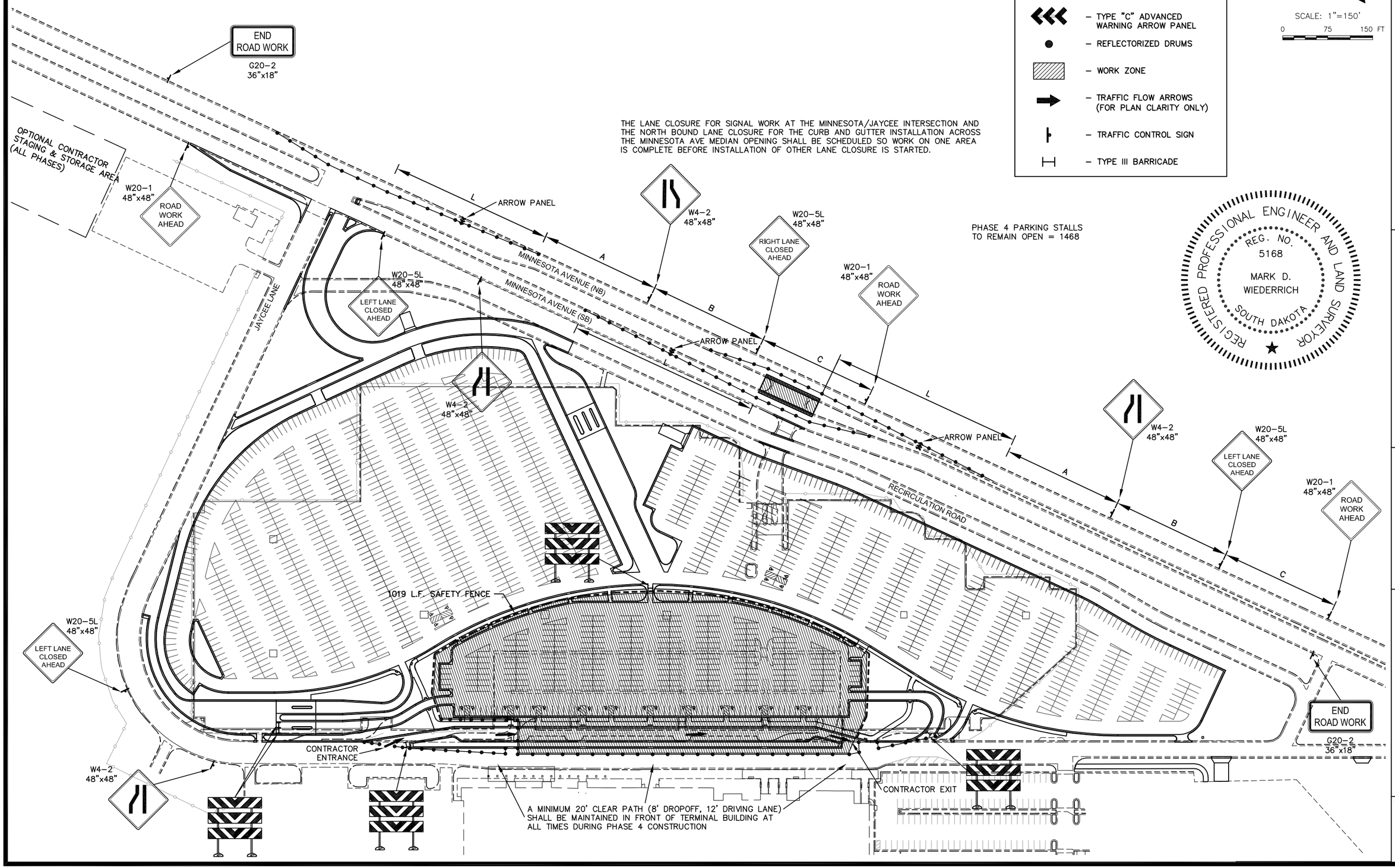
SHEET NO.
E6
OF
E9

TRAFFIC CONTROL
PHASE 4



THE LANE CLOSURE FOR SIGNAL WORK AT THE MINNESOTA/JAYCEE INTERSECTION AND THE NORTH BOUND LANE CLOSURE FOR THE CURB AND GUTTER INSTALLATION ACROSS THE MINNESOTA AVE MEDIAN OPENING SHALL BE SCHEDULED SO WORK ON ONE AREA IS COMPLETE BEFORE INSTALLATION OF OTHER LANE CLOSURE IS STARTED.

PHASE 4 PARKING STALLS TO REMAIN OPEN = 1468

LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

SCALE: 1"=150'
0 75 150 FT

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: EJL
DRAWN BY: EJL
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BY: DATE:

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SHEET NO.
E7
OF
E9

TRAFFIC CONTROL
PHASE 5

SCALE: 1"=150'
0 75 150 FT

CONTRACTOR TO INSTALL BARRELS AS NEEDED AROUND PARKING LOT PERIMETER FOR THE AREAS OF LANDSCAPING WORK TO BE COMPLETED DURING PHASE 5.

LEGEND

- TYPE "C" ADVANCED WARNING ARROW PANEL
- REFLECTORIZED DRUMS
- WORK ZONE
- TRAFFIC FLOW ARROWS (FOR PLAN CLARITY ONLY)
- TRAFFIC CONTROL SIGN
- TYPE III BARRICADE

MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
JAYCEE LANE
RECIRCULATION ROAD

W20-5R
48"x48"
RIGHT LANE CLOSED AHEAD

W4-2
48"x48"

STORM SEWER WORK
ARROW PANEL
ASPHALT OVERLAY AREA

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL

DESIGNED BY: EJL ACAD FILE: 210710_Traffic Control.dwg
DRAWN BY: EJL DATE: 3/11/2021
CHECKED BY: MDW BY: DATE:
REVISIONS: BY: DATE:

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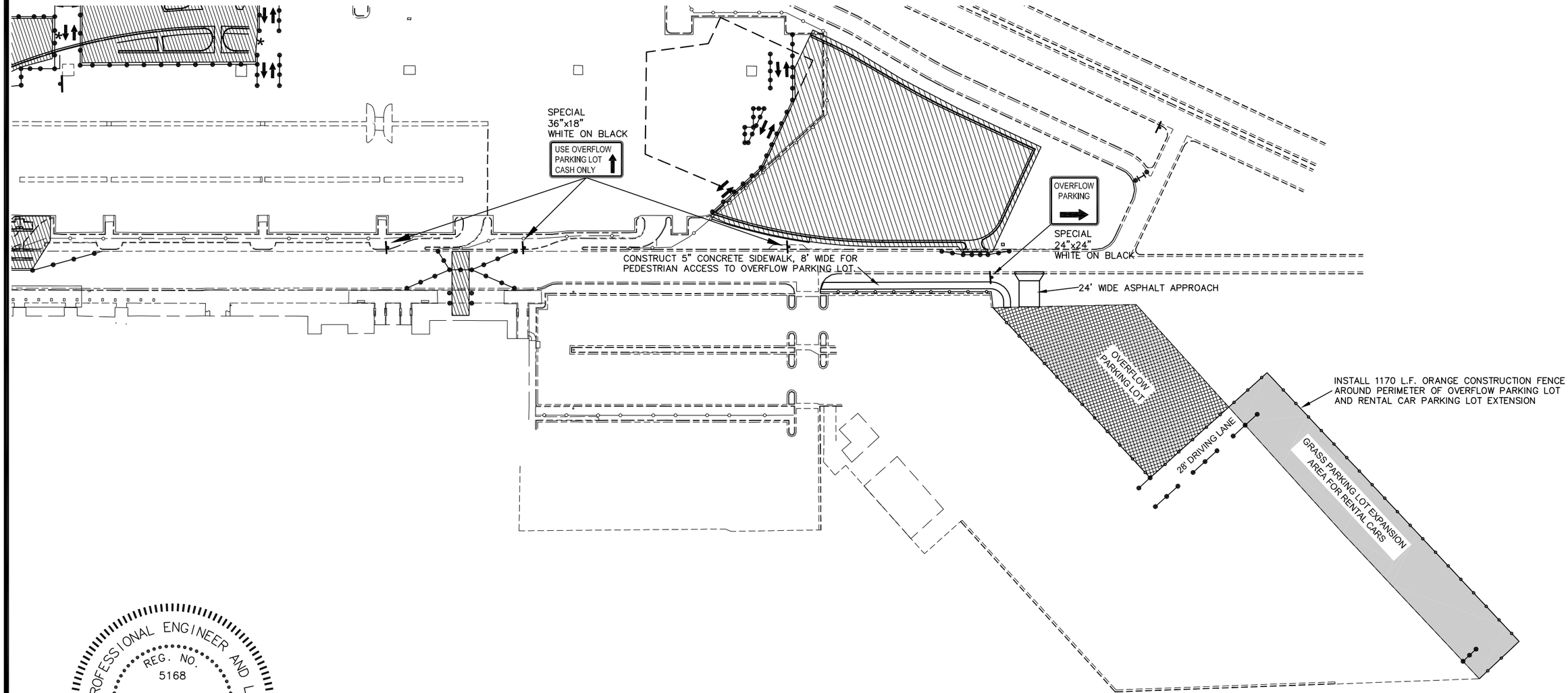
TRAFFIC CONTROL
OVERFLOW PARKING LAYOUT

SCALE: 1"=120'
0 60 120 FT



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

TRAFFIC CONTROL
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SHEET NO.
E9
OF
E9

Storm Water Pollution Prevention Plan (SWPPP)

Also known as Erosion & Sediment Control Plan (ESCP)

NARRATIVE

OWNER

Sioux Falls Regional Airport Authority
2801 Jaycee Lane
Sioux Falls, SD 57104
Executive Director: Dan Letellier
Email Address: dan.letellier@sfairport.com
Phone Number: 605-336-0762

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____
Printed Name

Signed: _____
Director of Public Works Date

DESIGN ENGINEER

Goldsmith Heck Engineers, Inc.
524 N. Sycamore Avenue, Suite 1
Sioux Falls, SD 57110
Registered Engineer: Mark Wiederrich, PE/LS
Email Address: mwiederr.goldeng@midconetwork.com
Phone Number: 605-332-9685

This SWPPP appears to fulfill the technical criteria for erosion control and the requirements of the City of Sioux Falls. I understand that additional erosion and sediment control measures may be needed if unforeseen erosion problems occur or if the submitted plan does not function as intended. The requirements of this plan shall run with the land and be the obligation of the **Primary Responsible Party** until such time as the plan is properly completed, modified or voided.

Signed: _____
Name/Title Date

PRIME CONTRACTOR

This section is to be executed by the Prime Contractor or his representative after the award of the contract. Work may not begin on the project until this section is signed.

I am acknowledging the review and acceptance of responsibility as the Primary Responsible Party for the installation, maintenance, and proper function of this SWPPP.

I certify under penalty of law that this document and all attachments will be revised or maintained under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Name: _____
Printed Name/Title

Signed: _____
Name Date

Company: _____

Address: _____

Phone Number: _____

Email Address: _____

NOTICE OF INTENT

A Notice of Intent (NOI) for coverage under the General Permit for Storm Water Discharges Associated with Construction Activities has been submitted to the SD DENR and the permit number is **SDR10F182**. A copy of the permit may be downloaded from http://www.state.sd.us/denr/DES/Surfacewater/IPermits/ConstructionPermit.pdf

PERMIT AND EROSION CONTROL CONTACT INFORMATION POSTING

The Contractor is required to post and maintain for public viewing a laminated copy of the Department of Environment and Natural Resources authorization letter. The authorization letter will be furnished to the Contractor by the City Engineer's office. The Contractor is also required to post and maintain for public viewing an Erosion Control Contact Information Posting (ECCIP) sign. The sign shall include the name and contact information of the Contractor. The ECCIP signs are available from the City Engineer's office. The letter and ECCIP sign must be posted in a prominent location such as the project's information board or the main entrance of the construction site. Multiple ECCIP signs should be posted on projects that have multiple entrances such as a street type project.

MODIFICATIONS TO THE SWPPP

The Engineer may order changes to the SWPPP and/or the Contractor is responsible to request changes to the SWPPP if unforeseen changes occur, or the SWPPP does not perform as intended, or to improve the effectiveness of the SWPPP, or to comply with the SD DENR permit. The Engineer will evaluate and determine if any Contractor requested changes to the SWPPP should be made. The Contractor is responsible to implement these changes as soon as practical. All approved changes to the SWPPP must be documented by the Engineer.

KEEPING THE SWPPP CURRENT

The Engineer will be responsible to maintain an original copy of the SWPPP. Any modifications to the SWPPP must be documented and made part of the SWPPP. Any modifications must be recorded on the modification form, available from the City Engineer's Office, and a copy of the form will be submitted to the Contractor for implementation. The SWPPP must be submitted at the end of the project and retained by the City of Sioux Falls for a period of 3 years from submittal of the Notice of Termination.

INSPECTIONS

The Contractor and Engineer will be required to perform inspections on the project at the following minimum frequency until the site has reached final stabilization and a Notice of Termination is submitted to the SDDENR:

1. Prior to the removal of any surfacing or topsoil.
2. Once every seven calendar days (minimum). When runoff is unlikely due to winter conditions the inspections may be reduced to once a month.
3. Within 24 hours after every rainfall of ½ inch or greater.
4. After a snow melt that causes erosion.
5. Within 24 hours of a complaint being made to the Contractor or Engineer.

The Engineer reserves to right to perform inspections more frequently than identified and additional inspections will be made if obvious items of non-compliance exist. If the Contractor fails to attend any inspection it does not relieve them of their responsibility to comply with any corrective or maintenance actions needed.

Items noted as being non-compliant or needing maintenance as a result of the inspections must be corrected as soon as practical. The site shall continue to be considered in non-compliance until the issue has been corrected to the satisfaction of the Engineer. Failure to correct items of non-compliance or those needing maintenance prior to the next inspection will result in price adjustment to the contract. The minimum price adjustment to the contract will be $100 per day per item per individual location. The Engineer may delay the issuance of the price adjustment(s) if the Engineer has determined all the following apply:

1. The Contractor has made a good faith effort to bring the items into compliance with the Erosion and Sediment Control Plan (ESCP) also known as a Storm Water Pollution Prevention Plan (SWPPP) and the State's General Permit.
2. Compliance was not achieved due to weather conditions outside the Contractor's control and the conditions were severe enough to prevent the Contractor from bringing the item into compliance.
3. The Contractor brought the item into compliance as soon as possible after the weather and site conditions permit.

The City Engineer's Office must also perform a regulatory oversight inspection as part of the Construction Site Program at least once per month or if a complaint is made to the City Engineer's office. These regulatory inspections may be performed jointly with one of the above listed inspections or they may be performed independently. The City is required to take formal enforcement actions in accordance with the City's Enforcement Response Plan for any identified non-compliance issues. These enforcement activities are independent and separate from the above described price adjustment.

Any price adjustment or formal enforcement actions taken by the City, State or Federal governments for the failure to implement the accepted ESCP is the Contractor's sole responsibility and shall not be a reimbursable expense to the City of Sioux Falls.

NOTICE OF TERMINATION

The Contractor is responsible for complying with the SWPPP until a Notice of Termination (NOT) of coverage under the General Permit has been issued. The N.O.T. will be prepared by the Engineer for submittal to the City and then the SDDENR when all storm water discharges covered by the permit are eliminated and final stabilization has been achieved on all portions of the site for which the permittee is responsible. Final stabilization means either or a combination of:

1. All soil disturbing activities at the site have been completed and a uniform perennial vegetative cover with a density of 70% of the native cover for unpaved areas and areas not covered by permanent structures has been established, or equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed; or

2. For construction projects on land used for agricultural purposes, final stabilization may be accomplished by returning the disturbed land to its pre-construction agricultural use. Areas disturbed that were not previously used for agricultural activities, such as buffer strips immediately adjacent to "waters of the state," and areas which are not being returned to their pre-construction agricultural use must meet the final stabilization criteria in (**1**) above.

PROJECT DESCRIPTION

The Sioux Falls Regional Airport terminal parking lot project, located in Sections 4 and 5 - T101N - R49W, consists of the demolition and reconstruction of the terminal parking lot and includes access and other improvements. Project work includes installing traffic control devices to allow the parking lot to remain open at all times, partial removal of existing parking lot surfacing, excavating for installation of storm sewer, watermain and sanitary sewer and the construction of parking lot and street surfacing and landscaping.

EXISTING SITE CONDITIONS

The Sioux Falls Regional Airport terminal parking lot is currently an asphalt surfaced parking lot with two access roads: Jaycee Lane and Recirculation Road. Jaycee Lane allows access to a drop-off lane by the terminal building, a short-term parking access, a long-term parking access and a ticketing exit plaza. The Recirculation Road access is near the end of Jaycee Lane and allows traffic to circle back to the beginning of Jaycee Lane. All existing street and parking lot storm inlets drain to an existing storm sewer truck that runs under the parking lot from west to east and outlets into the Big Sioux River Diversion Channel east of Minnesota Avenue.

ADJACENT AREAS

The Sioux Falls Regional Airport project limits are bordered on the east by Minnesota Avenue and bordered on all other sides by other airport property.

SOILS

The soils throughout the project generally consist of silty clay or sandy clay.

AREA AND VOLUME DISTURBED

The total surface area to be disturbed is 24.3 acres. It is estimated that 20,896 cubic yards of soil will be excavated.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL NARRATIVE
DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
FILE: 210710_Erosion Control Narrative.dsc
DATE: 3/11/2011
BY: DATE:
BY: DATE:

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SHEET NO.
F1
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F17

EROSION & SEDIMENT CONTROL SEQUENCE AND TIME SCHEDULE

The following paragraph(s) are intended to provide a guideline to the Contractor for the installation of initial erosion and sediment control measures and implementation of the Erosion & Sediment Control Plan during construction. The timeline and sequence are for reference only and may change depending on the Contractor's sequence of operations and must be approved by the Engineer prior to making changes.

Time Schedule:

Anticipated start date of construction is May 1, 2011.
Install and maintain preliminary erosion control measures such as inlet protection, vehicle tracking control and sediment basins prior to beginning grading activities in each phase.
Anticipated completion date of October 7, 2011 for Phase 4.
Anticipated completion date of November 18, 2011 for Phase 5.
Place seed mix and sod no more than 14 days after final grading work is complete.
Install erosion control measures such as inlet protection, mulch, erosion blanket, turf reinforcement mat, riprap, and any other measures deemed necessary by the Engineer upon completion of final grading.

Phase 1A - South extension of the long term parking lot, Part of North half of parking lot

Initial erosion control measures include the installation of inlet protection on all inlets affected by demolition or grading as shown on the plan. Sediment basins #1 and #2 shall be constructed prior to disturbing 5 acres or more. The temporary vehicle tracking control stations shown on the plan shall be installed immediately following pavement removals. Inlet protection shall be installed following the completion of each drop inlet or area inlet.
Upon completion of construction, install permanent erosion control and re-vegetation measures.

Phase 1B - Part of North half of long term parking lot

Maintain initial erosion control measures such as inlet protection installed with Phase 1A. Maintain sediment basins #1 and #2 such as horseshoe filter riprap as needed. Maintain temporary vehicle tracking control as shown on the plan. Temporary vehicle tracking control shall be moved as necessary for construction. Inlet protection shall be installed following the completion of each drop inlet or area inlet. Multiple installations of inlet protection may be required at each location due to construction activities.

Phase 2 - North half of long term parking, entrance plaza, exit plaza, Minn. Ave. & Jaycee Ln.

Maintain initial erosion control measures such as inlet protection installed with Phase 1A. Maintain sediment basins #1 and #2 such as horseshoe filter riprap as needed. Maintain temporary vehicle tracking control as shown on the plan. Temporary vehicle tracking control shall be moved as necessary for construction. Inlet protection shall be installed following the completion of each drop inlet or area inlet. Multiple installations of inlet protection may be required at each location due to construction activities.

Phase 3 - South half of long term parking, landscaping

Install new inlet protection as shown on the plan for Phase 3 and maintain inlet protection installed with Phase 1A. Maintain sediment basins #1 and #2 such as horseshoe filter riprap as needed. Install new temporary vehicle tracking control as shown on the plan. Temporary vehicle tracking control shall be moved as necessary for construction. Multiple installations of inlet protection may be required at each location due to construction activities.

Upon completion of construction, install permanent erosion control and re-vegetation measures.

Phase 4 - Short term parking lot

Maintain initial erosion control measures such as inlet protection installed with both Phase 1A and Phase 3. Maintain sediment basins #1 and #2 such as horseshoe filter riprap as needed. Install new temporary vehicle tracking control as shown on the plan. Temporary vehicle tracking control shall be moved as necessary for construction. Multiple installations of inlet protection may be required at each location due to construction activities.

Phase 5 - Asphalt mill/overlay at front of terminal building, storm crossing, landscaping

Install new inlet protection as shown on the plan for Phase 5 and maintain inlet protection installed with both Phase 1A and Phase 3. Convert sediment basins #1 and #2 into BMP Extended Detention Basins (referred to on plan as BMP Ponds #1 and #2).

Upon completion of construction, install permanent erosion control and re-vegetation measures such as erosion blanket, turf reinforcement mat and riprap.

Remove all initial erosion control measures at the end of Phase 5.

PERMANENT STABILIZATION MEASURES

Sod, seed, erosion blanket, turf reinforcement mat and riprap will be used for permanent stabilization of all disturbed areas not paved throughout the project limits.

STORMWATER MANAGEMENT CONSIDERATIONS

Storm water runoff from the reconstructed terminal parking lot will generally surface drain to the existing and proposed storm sewer system inlets. The existing storm sewer system will be reconstructed to route the storm water runoff through two BMP Extended Detention Basins as shown on Phase 5 of the plan. Each BMP will have an outlet flow control structure that drains to the existing 72 inch truck storm sewer and then outlets into the Big Sioux River Diversion Channel east of Minnesota Avenue.

GOOD HOUSEKEEPING

Nonstructural BMPs such as good housekeeping measures can, to some degree, prevent the deposition of pollutants on the urban landscape or remove pollutants at their source. The source of pollutants for assimilation into storm water is the land surface itself, especially the impervious surfaces in the urban area. Thus, it is expected that when nonstructural measures are effectively implemented, they will reduce the amount of pollutants being deposited on land surfaces for eventual contact with storm water and transported to the receiving water system. Therefore, the Contractor should evaluate and determine which appropriate good housekeeping measures listed below could be used.

Operation and Maintenance: To assure that equipment and work related processes are working well, the following practices can be implemented:

1. Maintain dry and clean floors and ground surfaces by using brooms, shovels, vacuum cleaners, or cleaning machines rather than wet cleanup methods.
2. Regularly pick up and dispose of garbage and waste material.
3. Make sure all equipment and related processes are working properly and preventative maintenance is kept up with on both.
4. Routinely inspect equipment and processes for leaks or conditions that could lead to discharges of chemicals or contact of storm water with raw materials, intermediate materials, waste materials, or products used on site.
5. Assure all spill cleanup procedures are understood by employees. Training of employees on proper cleanup procedures shall be implemented.
6. Designate separate areas of the site for auto parking, vehicle refueling, and routine maintenance.
7. Clean up leaks, drips, and other spills immediately.
8. Cover and maintain dumpsters and waste receptacles.

Material Storage Practices: Improperly storing material on site can lead to the release of materials and chemicals that can cause storm water runoff pollution. Proper storage techniques include the following:

1. Provide adequate aisle space to facilitate material transfer and ease of access for inspection.
2. Store containers, drums, and bags away from direct traffic routes to prevent accidental spills.
3. Stack containers according to manufacturer's instructions to avoid damaging the containers from improper weight distribution.
4. Store containers on pallets or similar devices to prevent corrosion of containers that results from containers coming in contact with moisture on the ground.
5. Store toxic or hazardous liquids within curbed areas or secondary containers.
6. Assign responsibility of hazardous material inventory to a limited number of people who are trained to handle such materials.

Material Inventory Practice: An up-to-date inventory kept on all materials (both hazardous and nonhazardous) present on site will help track how materials are stored and handled onsite, and identify which materials and activities pose the most risk to the environment. The following description provides the basic steps in completing a material inventory:

1. Identify all chemical substances present at work site. Perform a walk-through of the site, review purchase orders, list all chemical substances used, and obtain Material Safety Data Sheets (MSDS) for all chemicals.
2. Label all containers. Labels shall provide name and type of substance, stock number, expiration date, health hazards, handling suggestions, and first aid information. This information can also be found on an MSDS.
3. Clearly mark on the hazardous materials inventory which chemicals require special handling, storage, use, and disposal considerations. Decisions on the amounts of hazardous materials that are stored on site shall include an evaluation of any emergency control systems that are in place. All storage areas shall be designed to contain any spills.

Training and Participation: Frequent and proper training in good housekeeping techniques reduces the possibility of chemicals or equipment that will be mishandled. Reducing waste generation is another important pollution prevention technique. The following are ways to get people involved in good housekeeping practices:

1. Provide information sessions on good housekeeping practices in training programs.
2. Discuss good housekeeping at meetings.
3. Publicize pollution prevention concepts through posters or signs.

SPILL PREVENTION AND RESPONSE

In addition to good housekeeping measures, the Contractor should evaluate the Spill Prevention and Response Plan identified in section 12.8.6 of the City of Sioux Falls Engineering Design Standards to determine what Spill Prevention and Response measures should be used.

METHODS OF ENSURING SURFACE WATER QUALITY

The Contractor shall be responsible to ensure no sediment laden waters leave the project without exposure to an erosion or sediment control device.

The only non storm water discharge allowed by the General Permit for Storm Water Discharges Associated with Construction Activities is uncontaminated ground water or waters, used as a best management practice, to wash vehicles and control dust. It is the responsibility of the Contractor to obtain a General permit to discharge under the South Dakota Surface Water Discharge System for temporary discharge activities in South Dakota (dewatering permit) for all other non storm water discharges. All monitoring, testing, and other requirements of the dewatering permit are the responsibility of the Contractor.

Pumping (mechanically discharging) sediment laden water including ponded storm water or contaminated trench dewatering into the storm sewer or off the project site is not covered under the General Permit. It is the responsibility of the Contractor to obtain and comply with a dewatering permit for these activities. The Engineer may notify the SDDENR if the Contractor is observed pumping sediment laden water into the storm sewer or off site. Pumping sediment laden water through inlet protection is not allowed as a BMP.

In lieu of pumping sediment laden water the following are some methods the Contractor may use to control sediment laden water.

- The best method is for the Contractor to maintain positive drainage during all phases of the project to prevent water from ponding on the project.
- Treat the sediment laden water onsite through the use of filter bags, deflocculating chemicals, sediment basins, or a portable containment system.
- Pump or discharge the water to other portions of the site. This is allowed if the waters do not leave the project limits.

No payment will be made to the Contractor to comply with a dewatering permit unless otherwise specified and it will be considered incidental to the various bid items.

AGENCY COORDINATION

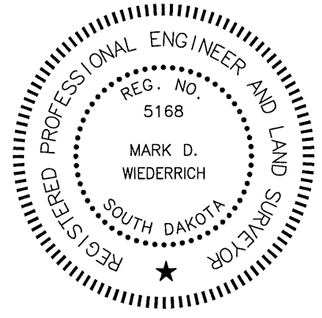
Are wetlands an issue? No

If wetlands are an issue, has a determination been made by the US Army Corps of Engineers? N/A.

Does the State Historical Preservation Office (SHPO) need to review these plans? No.
No new areas are being graded that have not already been constructed with past Sioux Falls Regional Airport improvements.

Does the SD Game Fish and Parks need to review these plans? No.

Does the US Fish and Wildlife Service need to review these plans? No.



TERMINAL PARKING & ACCESS IMPROVEMENTS
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SIOUX FALLS, SOUTH DAKOTA

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MODIFICATIONS OF EROSION AND SEDIMENT CONTROL DEVICES TO PREVENT PROPERTY DAMAGE

The Contractor is responsible to maintain drainage. In the event that an erosion or sediment control device is obstructing drainage and damage to property is possible the Contractor may temporarily modify or remove the device to facilitate drainage. An example is inlet protection in a sump location surrounded by buildings. If a device is removed for this purpose, the Contractor shall immediately notify the Engineer to discuss and implement alternatives to comply with the SWPPP and General Permit.

SOIL SURFACE STABILIZATION PRACTICES

After construction begins, soil surface stabilization shall be applied within 14 days to all disturbed areas that may not be at final grade but will remain dormant (undisturbed) for periods longer than 21 calendar days. Within 14 days after final grade is reached on any portion of the site, permanent or temporary soil surface stabilization shall be applied to disturbed areas and soil stockpiles. The following table lists the amount of time various erosion control measures are applicable.

Maximum Time Limits of Land Exposures for Selection of Erosion Controls

Erosion Control Method	Maximum Allowable Period of Exposure (Months)
Surface Roughening	1
Mulching	12
Temporary Revegetation	12 – 24
Permanent Revegetation	24 Or More
Soil Stockpile Revegetation	2
Early Application of Road Base	1

MAINTENANCE

The Contractor is responsible for maintaining and repairing all temporary erosion control, sediment control, and permanent erosion control measures until the Notice of Termination is filed. No payment will be made to the Contractor for maintaining or repairing these items unless otherwise specified. General maintenance requirements are listed but are not all inclusive and additional measures may need to be taken to comply with the General Permit and SWPPP.

REMOVAL OF TEMPORARY EROSION AND SEDIMENT CONTROL DEVICES

The Contractor is responsible to remove all temporary erosion control and sediment control devices when the site reaches final stabilization. No payment will be made to the Contractor for removing these items unless otherwise specified. The Engineer may order specific temporary erosion control and sediment control devices to remain in place past final stabilization. The Contractor will not be responsible to remove these items.

TEMPORARY EROSION & SEDIMENT CONTROL MEASURES

INSTALLATION OF SEDIMENT CONTROL MEASURES

The Contractor shall not begin the removal of surfacing or topsoil within the applicable work area until all applicable sediment control measures are placed. Sediment control measures shall be installed as necessary as construction progresses and these sediment control devices shall be installed within 24 hours at locations identified on the SWPPP.

TEMPORARY VEHICLE TRACKING CONTROL

Maintenance Requirements: Temporary vehicle tracking control should be inspected frequently to ensure that mud and dirt or not being tracked onto the roadway. Temporary vehicle tracking control material must be cleaned or replaced when the effectiveness of dirt removal is reduced.

Measurement: Temporary vehicle tracking control will be measured per each. Additional measurement will not be made for temporary vehicle tracking control that has been maintained, which includes replacement or repair at individual locations or for vehicle tracking control removed and reset in the same location to facilitate the contractor's method of operation.

Payment: Temporary vehicle tracking control will be paid for at the contract unit price per each. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the temporary vehicle tracking control.

TEMPORARY SEDIMENT BASIN

Two temporary sediment basins shall be constructed at the two locations shown on the Erosion & Sediment Control Plan sheets. Excavation of the sediment basin shall be included in the contract unit price for Unclassified Excavation. Construction of the horseshoe filter including furnishing rock, maintenance and restoration of the sediment basins shall be included in the per each contract unit price for the item Temporary Sediment Basin. After stabilization has been achieved, the sediment basins shall be converted to the two BMP Extended Detention Basins (referred to on plan as BMP Ponds #1 and #2) and match the plan contours. The BMP ponds shall be topsoiled, seeded, fertilized, mulched and reinforced matted/blanketed. Separate payment will be made for the topsoil, seed, fertilizer, mulch and reinforced mat/blanket.

Maintenance: Temporary sediment basins will require the removal of the accumulated sediment when the design storage level is one half full. Payment for removal of the sediment shall be considered incidental to the various bid items associated with the construction of the temporary sediment basin.

STREET SWEEPING

Construction Requirements: Street sweeping is required during construction and before final completion of work to keep streets adjacent to and within the project area clean. The minimum equipment to be used for street sweeping shall be a skid loader with a pick up broom attachment or engineer approved equal. No rotary broom without the pick up broom attachment/containment system will be acceptable to perform this work.

Maintenance: Sweeping shall be performed as needed to remove tracked mud from the roadway. Daily sweeping may be necessary if project conditions warrant.

Measurement: Street sweeping will be measured to the nearest tenth of an hour.

Payment: Street sweeping will be paid for at the contract unit price per hour. Payment shall be full compensation for all labor, equipment, and incidentals.

INLET PROTECTION

Maintenance Requirements: Accumulated sediment should be removed and disposed of on site. Device should be cleaned or replaced if standing water is evident 48 hours after a rain event. Damaged devices must be repaired.

Measurement: Inlet protection will be measured per each type installed. Additional measurement will be made when a different type of inlet protection is installed at each location. No additional measurement will be made when the same type of inlet protection is removed and reinstalled at the same location.

Payment: Inlet protection will be paid for at the contract unit price per each. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the inlet protection.

CONCRETE WASHOUT FACILITY

Construction Requirements: A concrete washout facility shall be installed on the project site at a location approved by the Engineer if concrete trucks deliver concrete to the site. No washout facility is necessary if all concrete trucks are going to wash out at approved site constructed by the concrete supplier.

Maintenance Requirements: The concrete washout facility must be kept in a condition to maintain the capacity for all wasted concrete and washout water on the project.

Measurement: Concrete washout facility will only be measured if the corresponding bid item has been included in the plans and a concrete washout facility has been constructed on the project site. Measurement for the concrete washout facility will be per each.

Payment: Payment for the concrete washout facility will be at the contract unit price per each if specified. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the concrete washout facility. If the corresponding bid item has not been included in the plans the concrete washout facility will be considered incidental to the contract.

CHECK DAM (FOREBAY ROCK BERM)

Maintenance Requirements: Sediment should be removed when it reaches one half of the original dam height. Any washouts and stones that have been washed downstream shall be repaired.

Measurement: Check dam will be measured to the nearest tenth of ton of rock. Additional measurement will be made for any additional rock that is added to maintain or repair the check dam.

Payment: Check dam will be paid for at the contract unit price per ton. Payment shall be full compensation for all materials, labor, equipment, and incidentals required to install, maintain, and remove the check dam. Payment also includes restoration of the area unless covered by other pay items in the contract.

PERMANENT EROSION CONTROL MEASURES

INSTALLATION OF PERMANENT EROSION CONTROL MEASURES

This work shall be done as soon as possible after finish grading and topsoil placement is completed, and if practical, prior to seeding, fertilizing, and mulching of adjacent areas. At a minimum, the work must be completed within the timeframes listed within the Soil Surface Stabilization Practices notes.

TOPSOIL

The following information is to provide an informational guideline to the Contractor regarding topsoil placement and the SWPPP. Detailed topsoil placement notes are found in the **Landscaping & Irrigation plan and notes in Section "O"**. Generally, topsoil will be placed over all disturbed areas to a depth of 6 inches. The placement of the topsoil shall be as soon as possible upon completion of the grading operations.

RIP RAP

Riprap shall be Class B and installed in the areas identified on the plans and shall conform to Section 700 of the SDDOT Standard Specifications. The drainage fabric for rip rap shall conform to Section 831-Type B.

SEEDING, SODDING, FERTILIZING & MULCHING

See Section "O" For Landscaping & Irrigation plan and notes.

MULCH FOR STOCKPILES AND INTERIM GRADING AREAS

If the Contractor creates stockpiles or has other disturbed areas that will remain dormant for a period of longer than 21 days then methods described in the Soil Surface Stabilization Practices note shall be used. A quantity of 1 ton of fiber mulch has been included in the estimate of quantities based on anticipated construction methods and timeframes. The Contractor will be required to grade the stockpiles in a manner to properly apply the fiber mulch. No payment will be made for mulch that must be applied as a result of the Contractor not meeting the specified completion dates of the project or as a result of changes to the sequence of operations.

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SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL NARRATIVE
DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
FILE: 210710_Erosion Control Narrative.dsc
DATE: 3/11/2011
BY:
DATE:
BY:
DATE:

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EROSION CONTROL BLANKET

The extended-term erosion control blanket shall be installed at the locations shown on the plans.

Maintenance: The ground surface should be inspected for signs of rill or gully erosion below the matting. If there are any signs of erosion, tearing of the matting, or areas where the matting is no longer anchored firmly to the ground, the matting should be repaired.

Material Content: The extended-term erosion control blanket shall be the North American Green SC150, or equivalent. The SC150 erosion control blanket shall have the following physical properties:

Matrix: 70% Straw Fiber
(0.35 lb/yd²) (0.19 kg/m²)
30% Coconut Fiber
(0.15 lb/yd²) (0.08 kg/m²)

Netting: Top - Heavyweight photodegradable with UV additives
(3.0 lbs/1,000 ft² [1.47 kg/100m²] approx. weight)

Bottom - Lightweight Photodegradable

Minimum Netting Weight (1.5 lbs/1000 ft2 [0.73 kg/100 m2] approx. weight)

Thread: Degradable

Stitch Spacing for all rolls = 1.50 inches (3.81 cm)

Material Specification: The extended-term erosion control blanket shall be a machine-produced mat of 70% straw/30% coconut fiber matrix with functional longevity of up to 24 months. (Note: functional longevity may vary depending upon climatic conditions, soil, geographic location, and elevation).

The blanket shall be of consistent thickness with the straw and coconut evenly distributed over the entire area of the blanket. The blanket shall be covered on the top side with heavyweight photodegradable polypropylene netting having ultraviolet additives to delay breakdown with an approximate 0.63 x 0.63 inch (1.59 x 1.59 cm) mesh, and on the bottom side with a lightweight photodegradable polypropylene netting with an approximate 0.50 x 0.50 inch (1.27 x 1.27 cm) mesh. The blanket shall be sewn together on 1.50 inch (3.81 cm) centers with degradable thread.

The extended-term erosion control blanket shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the U.S. Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications For Construction of Roads and Bridges on Federal Highway Projects, FP-03 2003 Section 713.17* as a *Type 3.B Extended-term Erosion Control Blanket.*

Installation staple patterns shall be clearly marked on the erosion control blanket with environmentally safe paint. The blanket shall be manufactured with a colored line or thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) to ensure proper material overlapping.

Installation on slopes or channels shall be in accordance with details shown in the plans. The erosion control blanket shall be secured using Staple Pattern E.

Payment: The contract unit price per square yard shall include all labor and materials associated with furnishing and installing the blanket in accordance with plan details and manufacturer's recommendations.

TURF REINFORCEMENT MAT

The composite turf reinforcement mat shall be installed at the locations shown on the plans.

Maintenance: The ground surface should be inspected for signs of rill or gully erosion below the matting. If there are any signs of erosion, tearing of the matting, or areas where the matting is no longer anchored firmly to the ground, the matting should be repaired.

Material Content: The composite turf reinforcement mat shall be the North American Green SC250, or equivalent. The SC250 composite turf reinforcement mat shall have the following physical properties:

Matrix: 70% Straw Fiber
(0.35 lb/yd²) (0.19 kg/m²)
30% Coconut Fiber
(0.15 lb/yd²) (0.08 kg/m²)

Netting: Top and Bottom - Heavy Duty UV Stabilized Polypropylene
(5.0 lbs/1,000 ft² [2.44 kg/100m²] approx. weight)

Mid - Corrugated Ultra Heavy Duty UV Stabilized Polypropylene
(24 lbs/1,000 ft² [11.7 kg/100m²] approx. weight)

Thread: UV Stabilized Polypropylene

Stitch Spacing for all rolls = 1.50 inches (3.81 cm)

Material Specification: The composite turf reinforcement mat shall be a machine-produced mat of 70% straw/30% coconut fiber matrix incorporated into permanent three-dimensional turf reinforcement matting.

The matrix shall be evenly distributed across the entire width of the matting and stitch bonded between a heavy duty UV stabilized bottom net with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, an ultra heavy duty UV stabilized, dramatically corrugated (crimped) intermediate netting with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings, and covered by a heavy duty UV stabilized top net with 0.50 x 0.50 inch (1.27 x 1.27 cm) openings. The middle corrugated netting shall form prominent closely spaced ridges across the entire width of the mat. The three nettings shall be stitched together on 1.50 inch (3.81 cm) centers with UV stabilized polypropylene thread to form a permanent three-dimensional turf reinforcement matting.

The composite turf reinforcement mat shall meet requirements established by the Erosion Control Technology Council (ECTC) Specification and the U.S. Department of Transportation, Federal Highway Administration's (FHWA) *Standard Specifications For Construction of Roads and Bridges on Federal Highway Projects, FP-03 2003 Section 713.18* as a *Type 5A, B, and C Permanent Turf Reinforcement Mat.*

Installation staple patterns shall be clearly marked on the turf reinforcement matting with environmentally safe paint. All mats shall be manufactured with a colored thread stitched along both outer edges (approximately 2-5 inches [5-12.5 cm] from the edge) as an overlap guide for adjacent mats.

Installation on slopes or channels shall be in accordance with details shown in the plans. The turf reinforcement mat shall be secured using Staple Pattern E.

Payment: The contract unit price per square yard shall include all labor and materials associated with furnishing and installing the mat in accordance with plan details and manufacturer's recommendations.

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EROSION & SEDIMENT CONTROL NARRATIVE

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DRAWN BY: ARS FILE: 210710_Erosion Control Narrative.dsc
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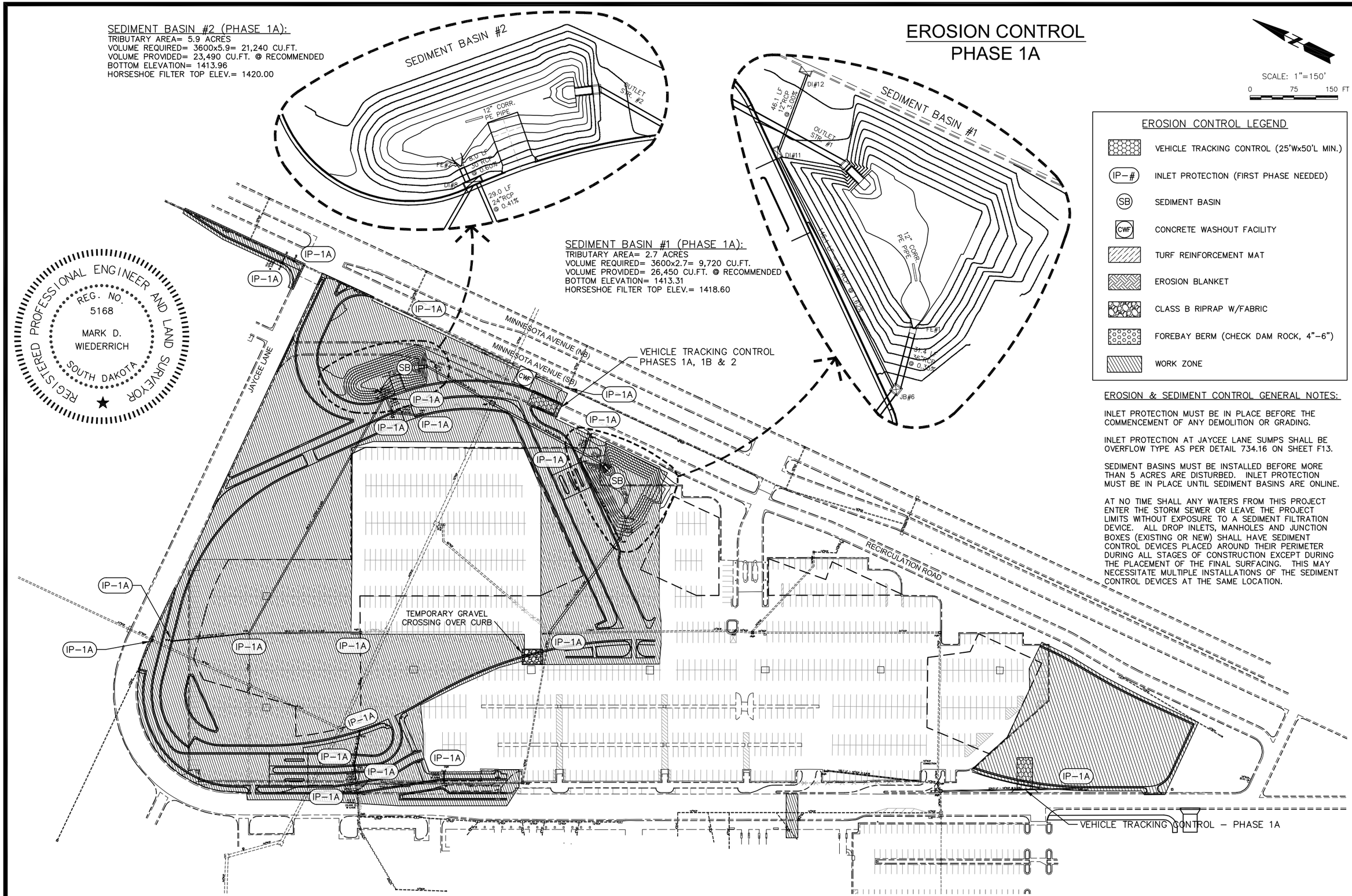
EROSION CONTROL
PHASE 1A

SCALE: 1"=150'
0 75 150 FT

SEDIMENT BASIN #2 (PHASE 1A):
TRIBUTARY AREA= 5.9 ACRES
VOLUME REQUIRED= 3600x5.9= 21,240 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 1A):
TRIBUTARY AREA= 2.7 ACRES
VOLUME REQUIRED= 3600x2.7= 9,720 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60



EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP-# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"–6")
- WORK ZONE

EROSION & SEDIMENT CONTROL GENERAL NOTES:

INLET PROTECTION MUST BE IN PLACE BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR GRADING.

INLET PROTECTION AT JAYCEE LANE SUMPS SHALL BE OVERFLOW TYPE AS PER DETAIL 734.16 ON SHEET F13.

SEDIMENT BASINS MUST BE INSTALLED BEFORE MORE THAN 5 ACRES ARE DISTURBED. INLET PROTECTION MUST BE IN PLACE UNTIL SEDIMENT BASINS ARE ONLINE.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

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EROSION & SEDIMENT CONTROL PLAN
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DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 21071G_Erosion Control.dwg
DATE: 3/11/2011
BY: DATE:
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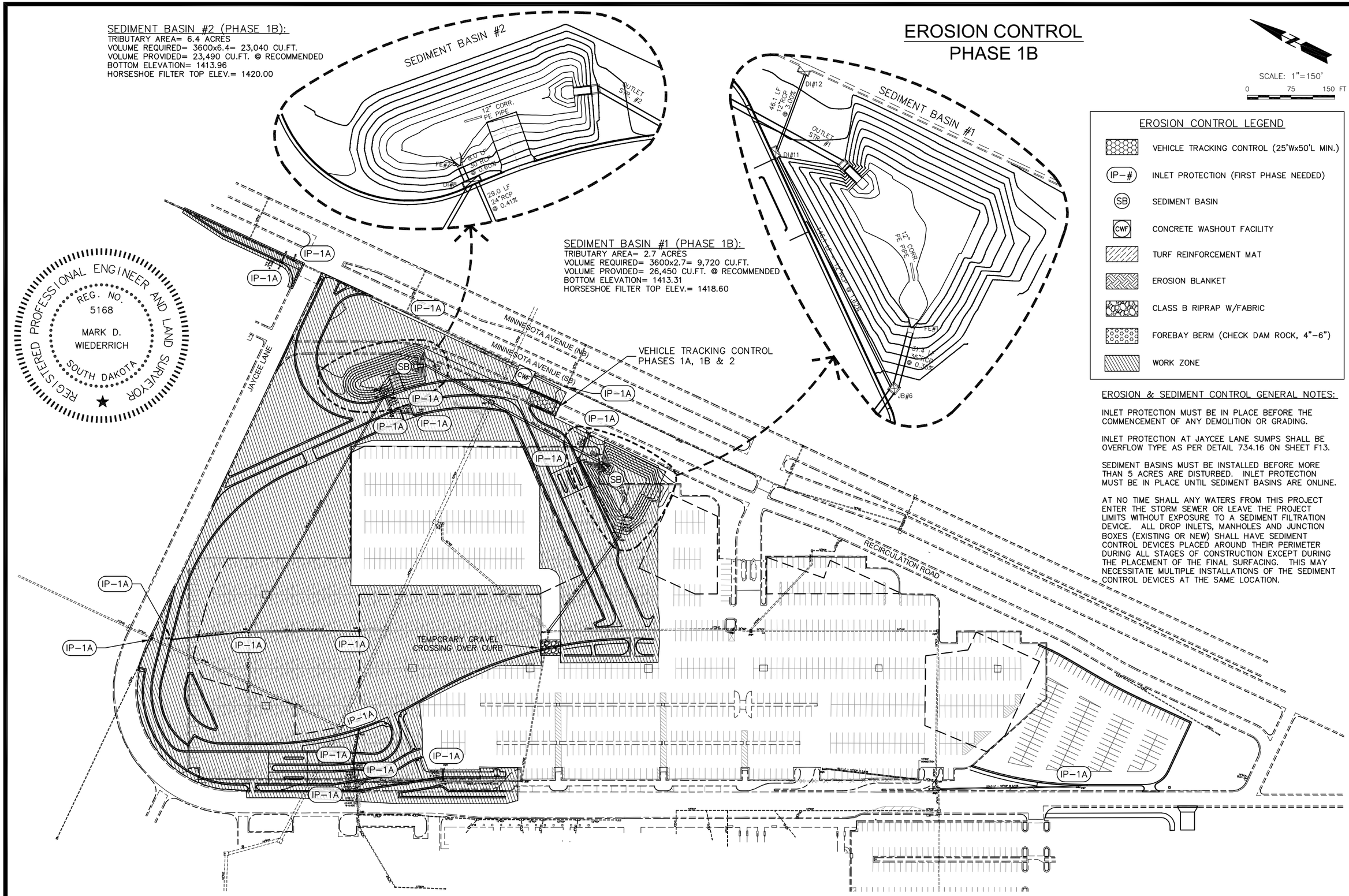
SHEET NO.
F5
OF
F17

EROSION CONTROL
PHASE 1B

SCALE: 1"=150'
0 75 150 FT

SEDIMENT BASIN #2 (PHASE 1B):
TRIBUTARY AREA= 6.4 ACRES
VOLUME REQUIRED= 3600x6.4= 23,040 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 1B):
TRIBUTARY AREA= 2.7 ACRES
VOLUME REQUIRED= 3600x2.7= 9,720 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60



EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP-# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"-6")
- WORK ZONE

EROSION & SEDIMENT CONTROL GENERAL NOTES:

INLET PROTECTION MUST BE IN PLACE BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR GRADING.

INLET PROTECTION AT JAYCEE LANE SUMPS SHALL BE OVERFLOW TYPE AS PER DETAIL 734.16 ON SHEET F13.

SEDIMENT BASINS MUST BE INSTALLED BEFORE MORE THAN 5 ACRES ARE DISTURBED. INLET PROTECTION MUST BE IN PLACE UNTIL SEDIMENT BASINS ARE ONLINE.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN

DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 210710_Erosion Control.dwg
DATE: 3/11/2021
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

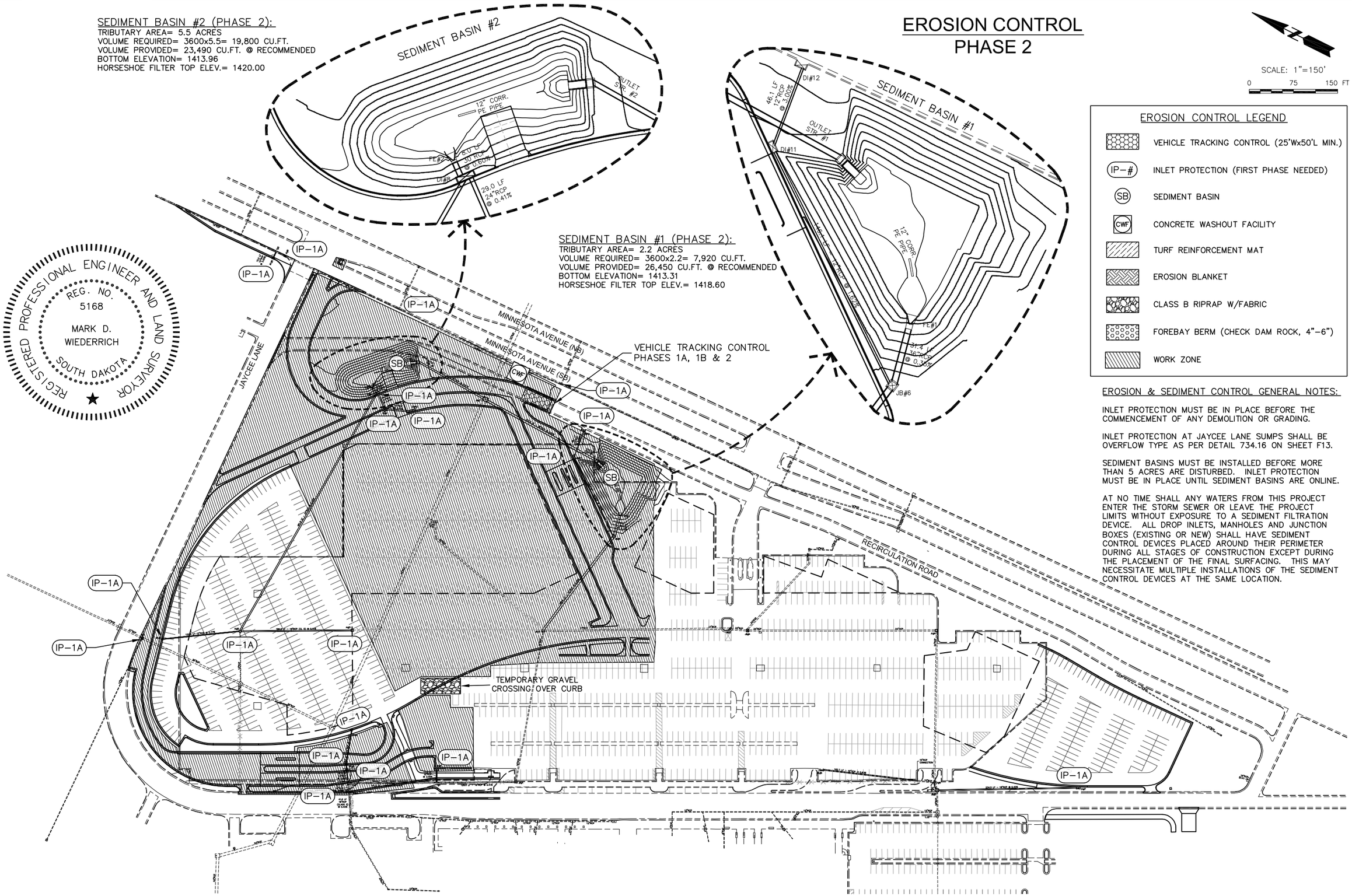
SHEET NO.
F6
OF
F17

EROSION CONTROL
PHASE 2

SCALE: 1"=150'
0 75 150 FT

SEDIMENT BASIN #2 (PHASE 2):
TRIBUTARY AREA= 5.5 ACRES
VOLUME REQUIRED= 3600x5.5= 19,800 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 2):
TRIBUTARY AREA= 2.2 ACRES
VOLUME REQUIRED= 3600x2.2= 7,920 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP-# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"-6")
- WORK ZONE

EROSION & SEDIMENT CONTROL GENERAL NOTES:

INLET PROTECTION MUST BE IN PLACE BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR GRADING.

INLET PROTECTION AT JAYCEE LANE SUMPS SHALL BE OVERFLOW TYPE AS PER DETAIL 734.16 ON SHEET F13.

SEDIMENT BASINS MUST BE INSTALLED BEFORE MORE THAN 5 ACRES ARE DISTURBED. INLET PROTECTION MUST BE IN PLACE UNTIL SEDIMENT BASINS ARE ONLINE.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN
DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 21070_Erosion Control.dwg
DATE: 3/11/2011
BY:
DATE:
BY:
DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

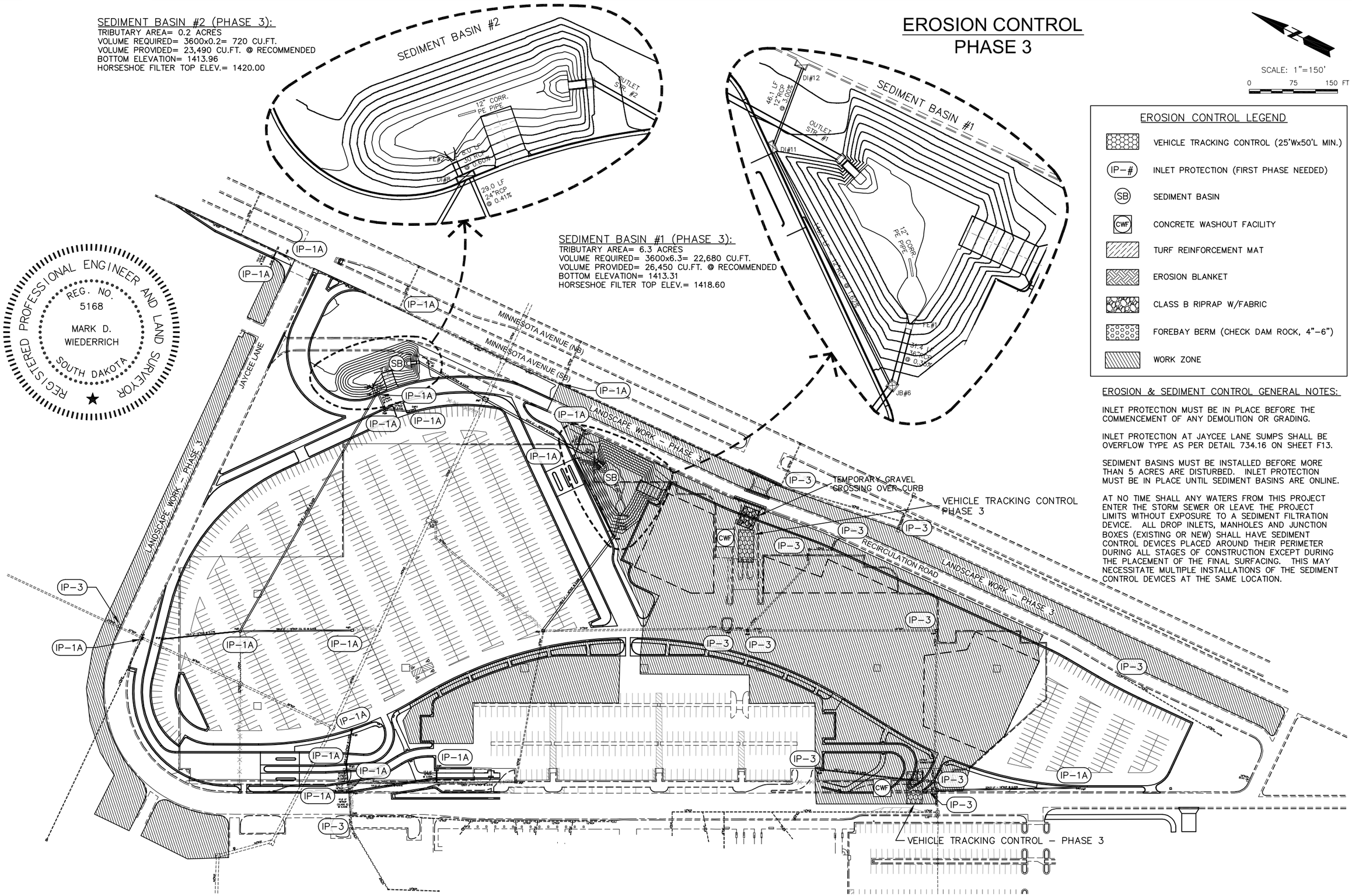
SHEET NO.
F7
OF
F17

EROSION CONTROL
PHASE 3

SCALE: 1"=150'
0 75 150 FT

SEDIMENT BASIN #2 (PHASE 3):
TRIBUTARY AREA= 0.2 ACRES
VOLUME REQUIRED= 3600x0.2= 720 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 3):
TRIBUTARY AREA= 6.3 ACRES
VOLUME REQUIRED= 3600x6.3= 22,680 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP-# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"-6")
- WORK ZONE

EROSION & SEDIMENT CONTROL GENERAL NOTES:

INLET PROTECTION MUST BE IN PLACE BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR GRADING.

INLET PROTECTION AT JAYCEE LANE SUMPS SHALL BE OVERFLOW TYPE AS PER DETAIL 734.16 ON SHEET F13.

SEDIMENT BASINS MUST BE INSTALLED BEFORE MORE THAN 5 ACRES ARE DISTURBED. INLET PROTECTION MUST BE IN PLACE UNTIL SEDIMENT BASINS ARE ONLINE.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN
DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Erosion Control.dwg
DATE: 3/11/2021
BY:
DATE:
BY:
DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

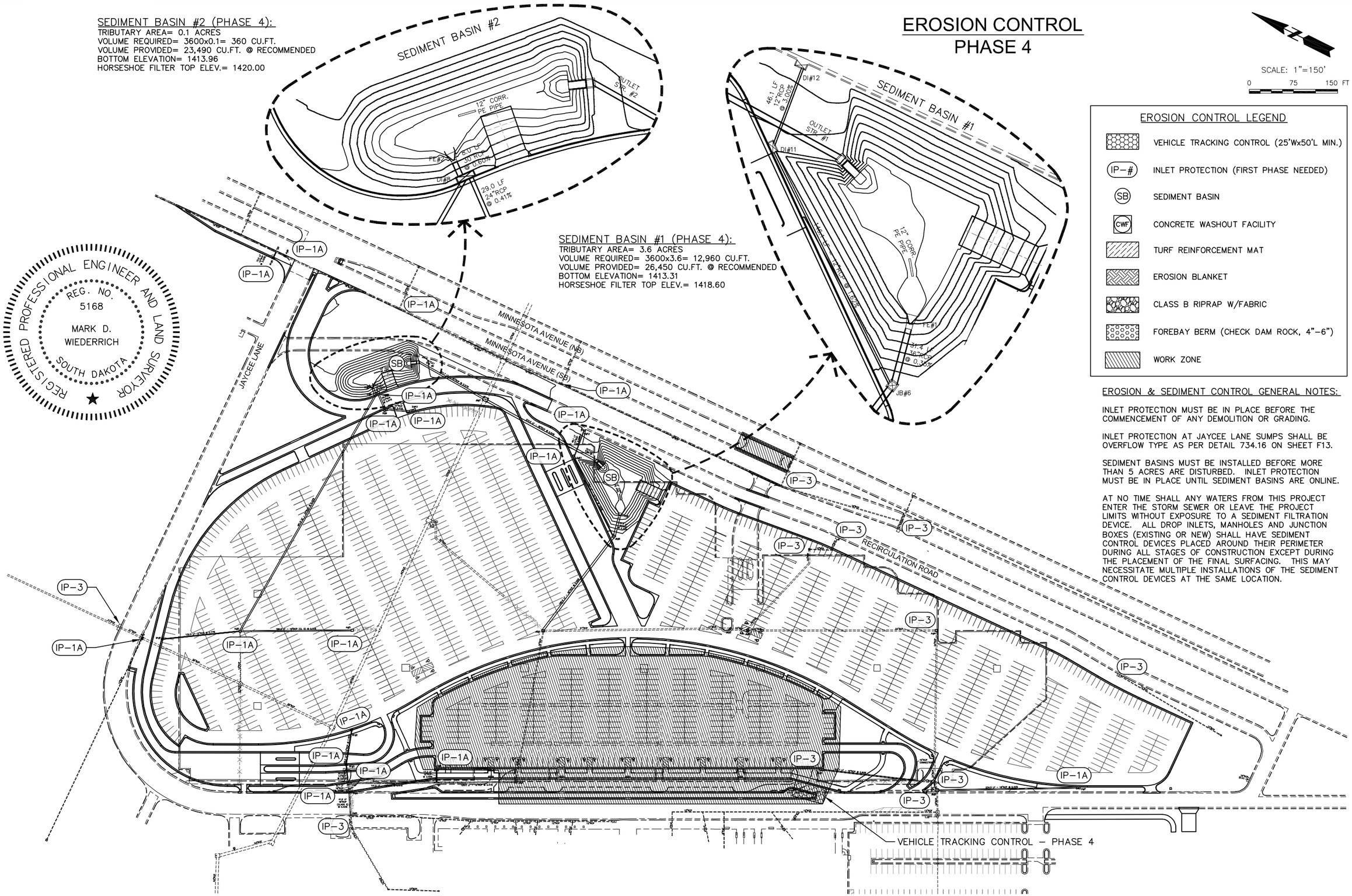
SHEET NO.
F8
OF
F17

EROSION CONTROL
PHASE 4

SCALE: 1"=150'
0 75 150 FT

SEDIMENT BASIN #2 (PHASE 4):
TRIBUTARY AREA= 0.1 ACRES
VOLUME REQUIRED= 3600x0.1= 360 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 4):
TRIBUTARY AREA= 3.6 ACRES
VOLUME REQUIRED= 3600x3.6= 12,960 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP-# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"-6")
- WORK ZONE

EROSION & SEDIMENT CONTROL GENERAL NOTES:

INLET PROTECTION MUST BE IN PLACE BEFORE THE COMMENCEMENT OF ANY DEMOLITION OR GRADING.

INLET PROTECTION AT JAYCEE LANE SUMPS SHALL BE OVERFLOW TYPE AS PER DETAIL 734.16 ON SHEET F13.

SEDIMENT BASINS MUST BE INSTALLED BEFORE MORE THAN 5 ACRES ARE DISTURBED. INLET PROTECTION MUST BE IN PLACE UNTIL SEDIMENT BASINS ARE ONLINE.

AT NO TIME SHALL ANY WATERS FROM THIS PROJECT ENTER THE STORM SEWER OR LEAVE THE PROJECT LIMITS WITHOUT EXPOSURE TO A SEDIMENT FILTRATION DEVICE. ALL DROP INLETS, MANHOLES AND JUNCTION BOXES (EXISTING OR NEW) SHALL HAVE SEDIMENT CONTROL DEVICES PLACED AROUND THEIR PERIMETER DURING ALL STAGES OF CONSTRUCTION EXCEPT DURING THE PLACEMENT OF THE FINAL SURFACING. THIS MAY NECESSITATE MULTIPLE INSTALLATIONS OF THE SEDIMENT CONTROL DEVICES AT THE SAME LOCATION.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN

DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Erosion Control.dwg
DATE: 3/11/2021
BY:
DATE:
BY:
DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
F9
OF
F17

EROSION CONTROL
PHASE 5

BMP POND #2 (NORTH) – EROSION CONTROL MEASURES:

30"RCP FLARED END:
CLASS B RIPRAP= 61 TON
RIPRAP DIMENSIONS= 28'L x 12'W x 2.7'D
DRAINAGE FABRIC= 32 S.Y.

TURF REINFORCEMENT MAT: 767 S.F.= 85 S.Y.

EROSION BLANKET: 8,039 S.F.= 893 S.Y.

OUTLET STRUCTURE #2:
CLASS B RIPRAP= 31 TON
RIPRAP DIMENSIONS= 15'L x 7'W–3'W x 2.7'D x 2 SIDES
DRAINAGE FABRIC= 17 S.Y.

FOREBAY BERM:
CHECK DAM ROCK (4"–6")= 13 TON
BERM DIMENSIONS= 27.4'L x 6.0'W x 2.0'T
BERM TOP ELEV.= 1416.30

SEDIMENT BASIN #2 / BMP POND #2

SEDIMENT BASIN #2 (PHASE 5):
TRIBUTARY AREA= 1.7 ACRES
VOLUME REQUIRED= 3600x1.7= 6,120 CU.FT.
VOLUME PROVIDED= 23,490 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.96
HORSESHOE FILTER TOP ELEV.= 1420.00

SEDIMENT BASIN #1 (PHASE 5):
TRIBUTARY AREA= 2.4 ACRES
VOLUME REQUIRED= 3600x2.4= 8,640 CU.FT.
VOLUME PROVIDED= 26,450 CU.FT. @ RECOMMENDED
BOTTOM ELEVATION= 1413.31
HORSESHOE FILTER TOP ELEV.= 1418.60

SEDIMENT BASIN #1 / BMP POND #1

BMP POND #1 (SOUTH)– EROSION CONTROL MEASURES:

36"RCP FLARED END:
CLASS B RIPRAP= 70 TON
RIPRAP DIMENSIONS= 28'L x 12'W x 2.7'D
DRAINAGE FABRIC= 37 S.Y.

TURF REINFORCEMENT MAT: 764 S.F.= 85 S.Y.

EROSION BLANKET: 12,310 S.F.= 1,368 S.Y.

OUTLET STRUCTURE #1:
CLASS B RIPRAP= 31 TON
RIPRAP DIMENSIONS= 15'L x 7'W–3'W x 2.7'D x 2 SIDES
DRAINAGE FABRIC= 17 S.Y.

FOREBAY BERM:
CHECK DAM ROCK (4"–6")= 34 TON
BERM DIMENSIONS= 46.8'L x 7.5'W x 2.5'T
BERM TOP ELEV.= 1416.10

SCALE: 1"=150'
0 75 150 FT

EROSION CONTROL LEGEND

- VEHICLE TRACKING CONTROL (25'Wx50'L MIN.)
- IP–# INLET PROTECTION (FIRST PHASE NEEDED)
- SB SEDIMENT BASIN
- CWF CONCRETE WASHOUT FACILITY
- TURF REINFORCEMENT MAT
- EROSION BLANKET
- CLASS B RIPRAP W/FABRIC
- FOREBAY BERM (CHECK DAM ROCK, 4"–6")
- WORK ZONE

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN
DESIGNED BY: ARS
DRAWN BY: ARS
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Erosion Control.dwg
DATE: 3/11/2011
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SHEET NO.
F10
OF
F17

VTC

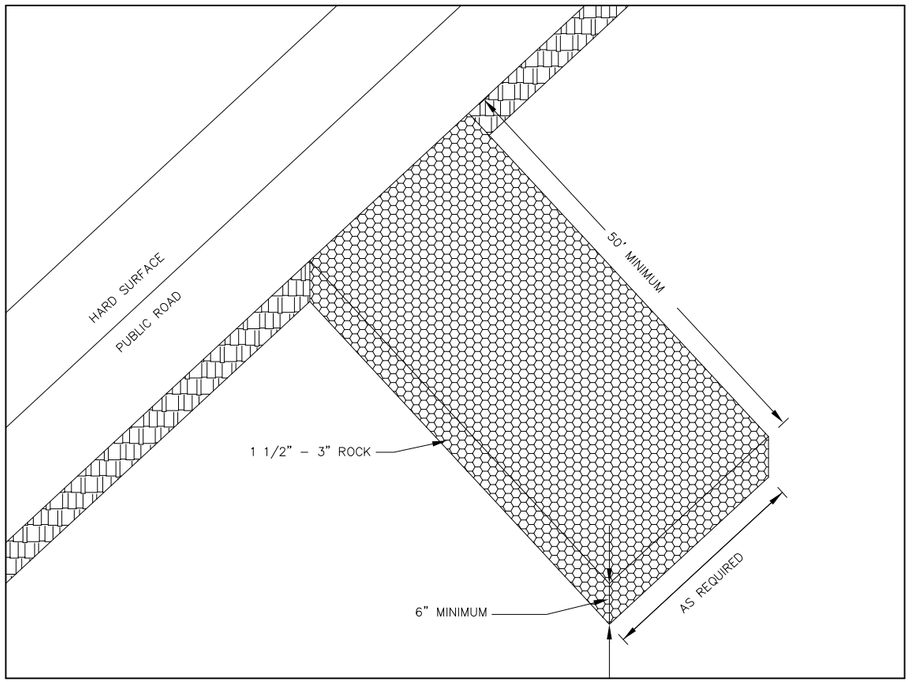
VEHICLE TRACKING CONTROL

DEFINITION:

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON A CONSTRUCTION SITE.

PURPOSES:

TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS BY MOTOR VEHICLES OR RUNOFF.



REVISED: MAY 2003

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION TEMPORARY VEHICLE TRACKING CONTROL	PLATE NUMBER 734.02

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 210710_Standard Plates.dwg
DATE: 3/11/2011
BY: DATE:
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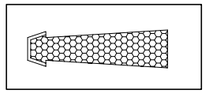
SHEET NO.
F11
OF
F17



OP

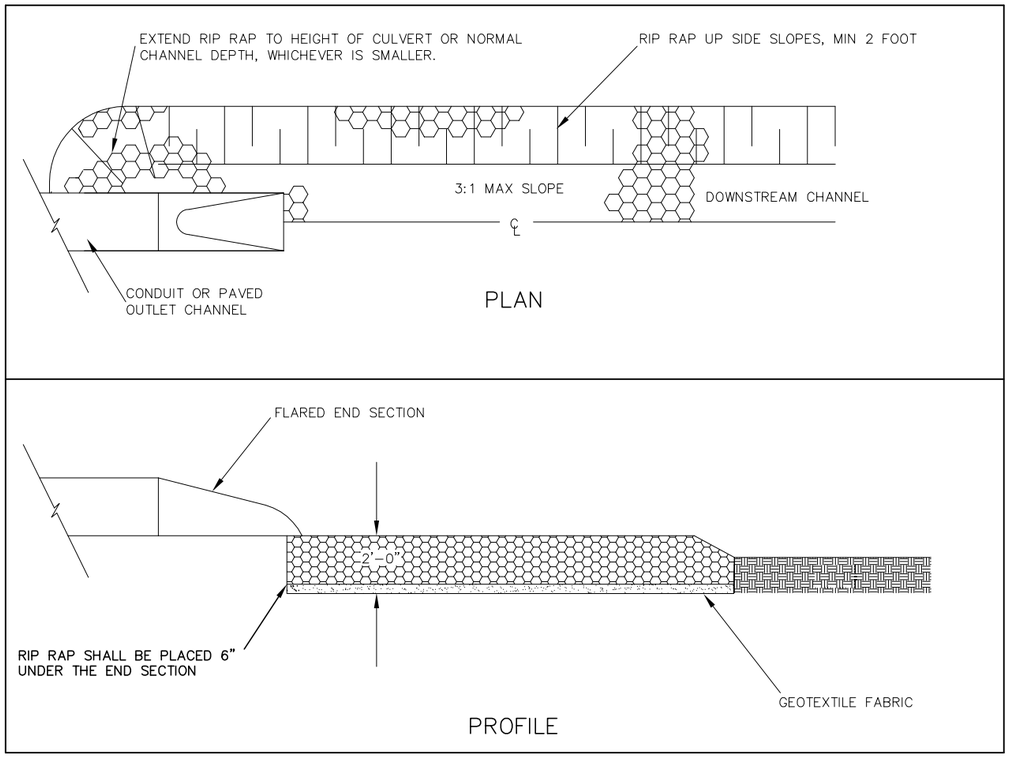
OUTLET PROTECTION

DEFINITION:

STRUCTURALLY LINED APRONS OR OTHER ACCEPTABLE ENERGY DISSIPATING DEVICES PLACED AT THE OUTLETS OF PIPES OR PAVED CHANNEL SECTIONS.

PURPOSES:

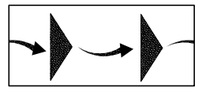
1. TO PREVENT SCOUR AT STORM WATER OUTLETS AND TO MINIMIZE THE POTENTIAL FOR DOWNSTREAM EROSION BY REDUCING THE VELOCITY OF CONCENTRATED STORM WATER FLOWS.



QUANTITY AND SIZE OF RIP RAP TO BE DETERMINED BY DESIGN.
ALL RIP RAP SHALL BE UNDERLAID BY A SUITABLE FILTER FABRIC.

REVISED: DECEMBER 2009

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
	OUTLET PROTECTION	734.14



CD

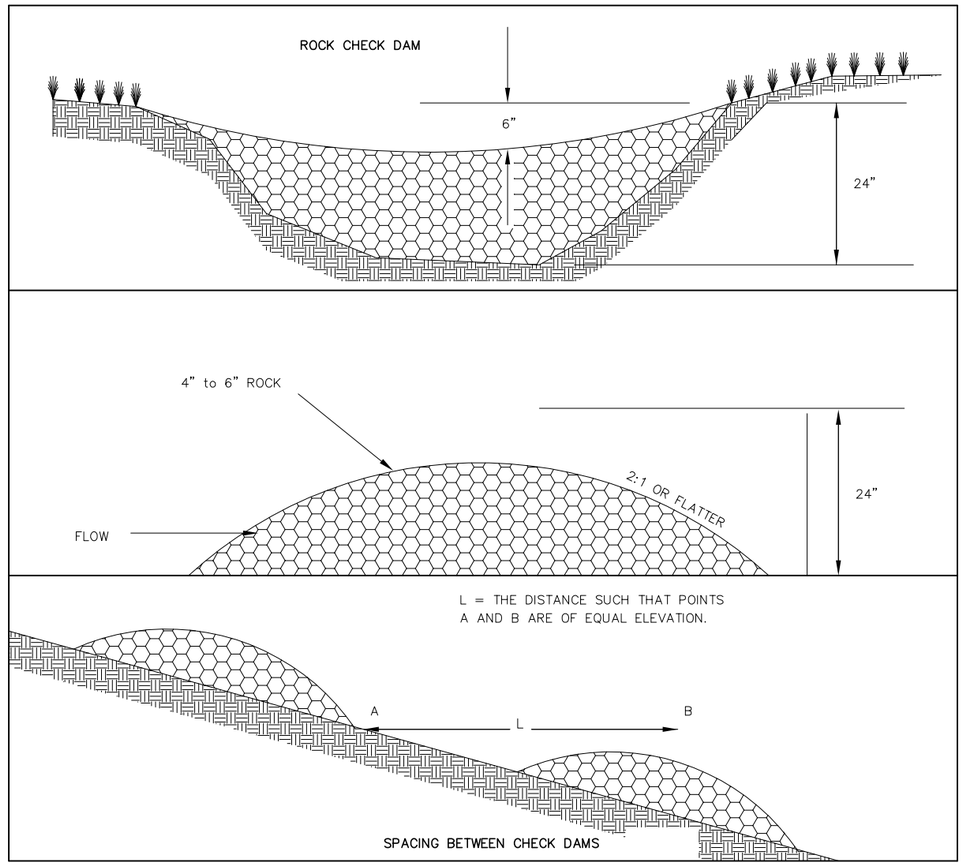
CHECK DAM

DEFINITION:

SMALL TEMPORARY DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH.

PURPOSES:

TO REDUCE THE VELOCITY OF STORM WATER FLOWS AND EROSION OF THE SWALE OR DITCH.



REVISED: JUNE 2000

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
	CHECK DAM	734.15

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
F12
OF
F17

INLET PROTECTION

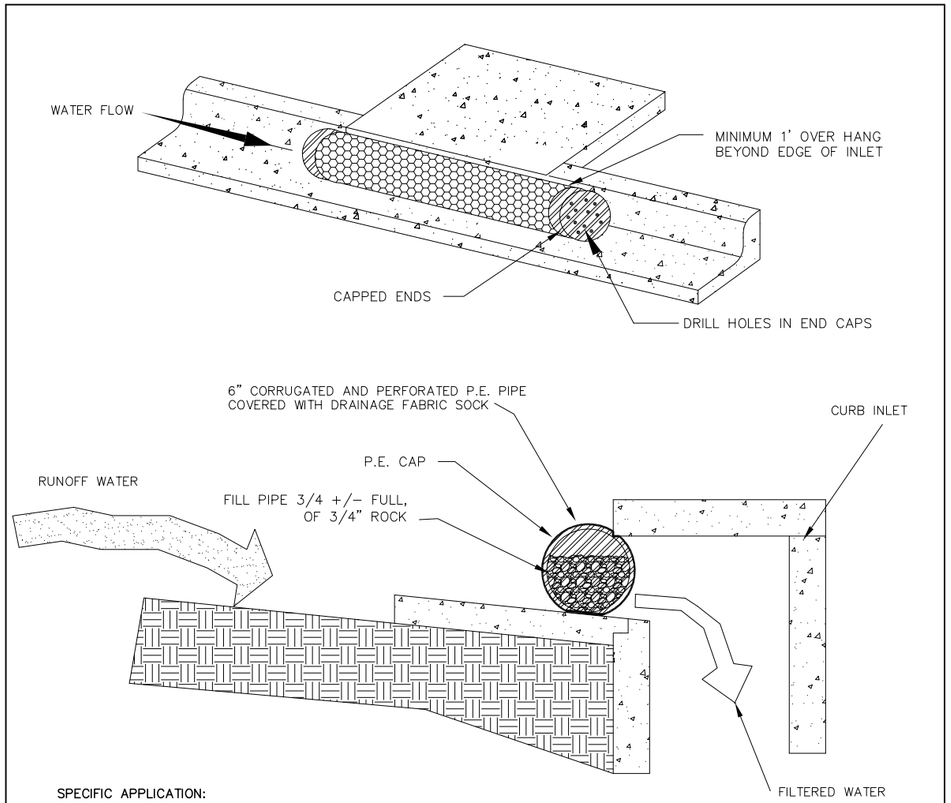
IP

DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.
TO BE USED ONLY AT ON-GRADE CONDITIONS.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION
OF DISTURBED AREAS.



SPECIFIC APPLICATION:
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS. CLEAN OUT AS NECESSARY TO PREVENT BLOCKAGE OF RUNOFF CONVEYANCE.

REVISED: NOVEMBER 2008

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION CORRUGATED PIPE AND FABRIC INLET PROTECTION	PLATE NUMBER 734.24

INLET PROTECTION

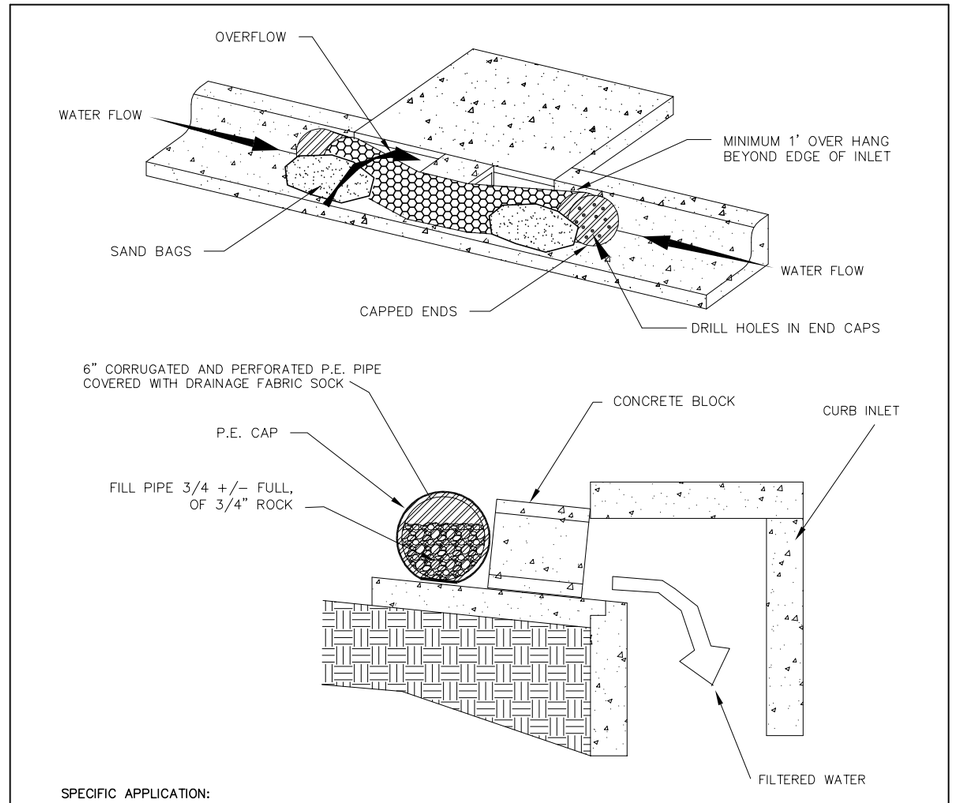
IP

DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.
TO BE USED AT SUMP CONDITIONS.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION
OF DISTURBED AREAS.



SPECIFIC APPLICATION:
THIS METHOD OF INLET PROTECTION IS APPLICABLE AT CURB INLETS WHERE PONDING IN FRONT OF THE STRUCTURE IS NOT LIKELY TO CAUSE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS. CLEAN OUT AS NECESSARY TO PREVENT BLOCKAGE OF RUNOFF CONVEYANCE.

REVISED: NOVEMBER 2008

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION CORRUGATED PIPE AND FABRIC INLET PROTECTION - OVERFLOW	PLATE NUMBER 734.16

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
F13
OF
F17

INLET PROTECTION

IP

DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.

1. SET POSTS.

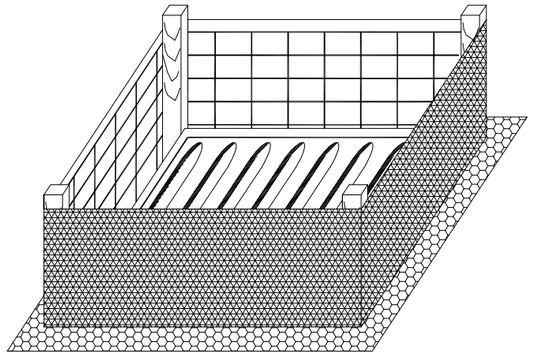
2. EXCAVATE AN 8" X 8" TRENCH UPSLOPE ALONG THE POSTS.

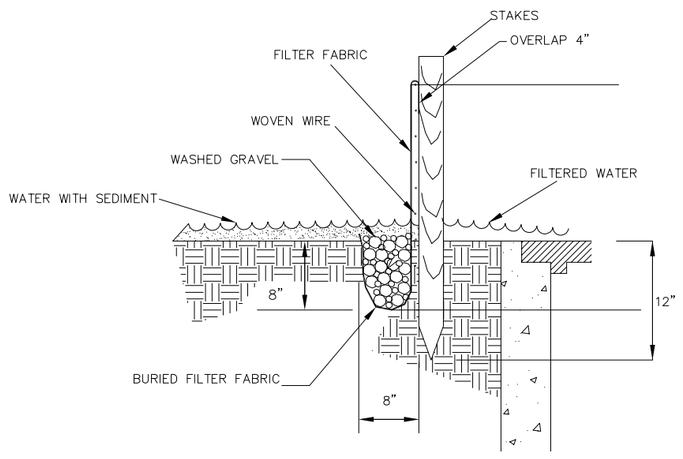
3. ATTACH A SUPPORTING WIRE FENCE TO THE POSTS

4. ATTACH FABRIC SANDWICH 4" FABRIC OVERLAP BETWEEN POSTS AND WIRE AND EXTEND INTO TRENCH.

5. BACK FILL TRENCH. IF ROCK TYPE SOILS ARE ENCOUNTERED, UTILIZE 30 TO 40 LB SANDBAGS BUTTED END TO END TO PREVENT UNDERFLOW.

ATTACH FABRIC WITH HOG RINGS 12" MAXIMUM HORIZONTAL SPACING ON TOP AND BOTTOM OF THE WOVEN WIRE AND WITH STAPLES OR WIRE TIES AT 12" MAXIMUM VERTICAL SPACING ON THE POSTS.





FILTER FABRIC SHALL CONFORM TO SECTION 831 OF SDDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

REVISED: JUNE 2000

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION SILT FENCE DROP INLET SEDIMENT FILTER	PLATE NUMBER 734.17

INLET PROTECTION

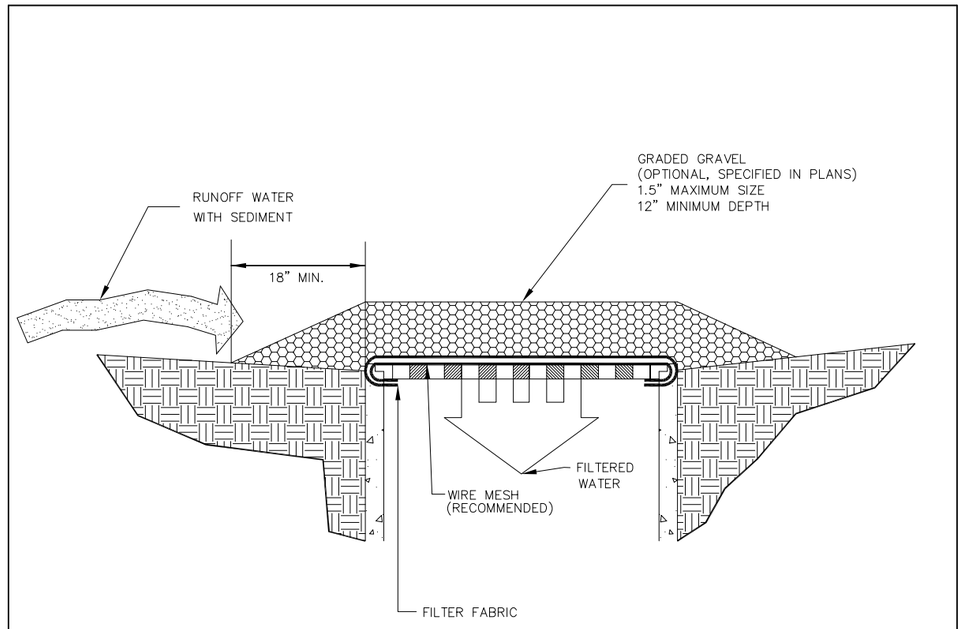
IP

DEFINITION:

A SEDIMENT FILTER OR AN EXCAVATED IMPOUNDING AREA AROUND A STORM DRAIN DROP INLET OR CURB INLET.

PURPOSES:

TO REDUCE SEDIMENT FROM ENTERING STORM DRAINAGE SYSTEMS PRIOR TO PERMANENT STABILIZATION OF DISTURBED AREAS.



SPECIFIC APPLICATION:

THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED, BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.

NOTE: ALTERNATE DESIGN COULD UTILIZE GRAVEL–FILLED BAGS.

DRAINAGE AND FILTRATION FABRIC SHALL CONFORM TO SECTION 831 OF SDDOT STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION.

REVISED: OCTOBER 2006

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION GRAVEL/FILTER FABRIC DROP INLET SEDIMENT FILTER	PLATE NUMBER 734.21

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011 DATE:
REVISIONS: BY: DATE:
BY: DATE:

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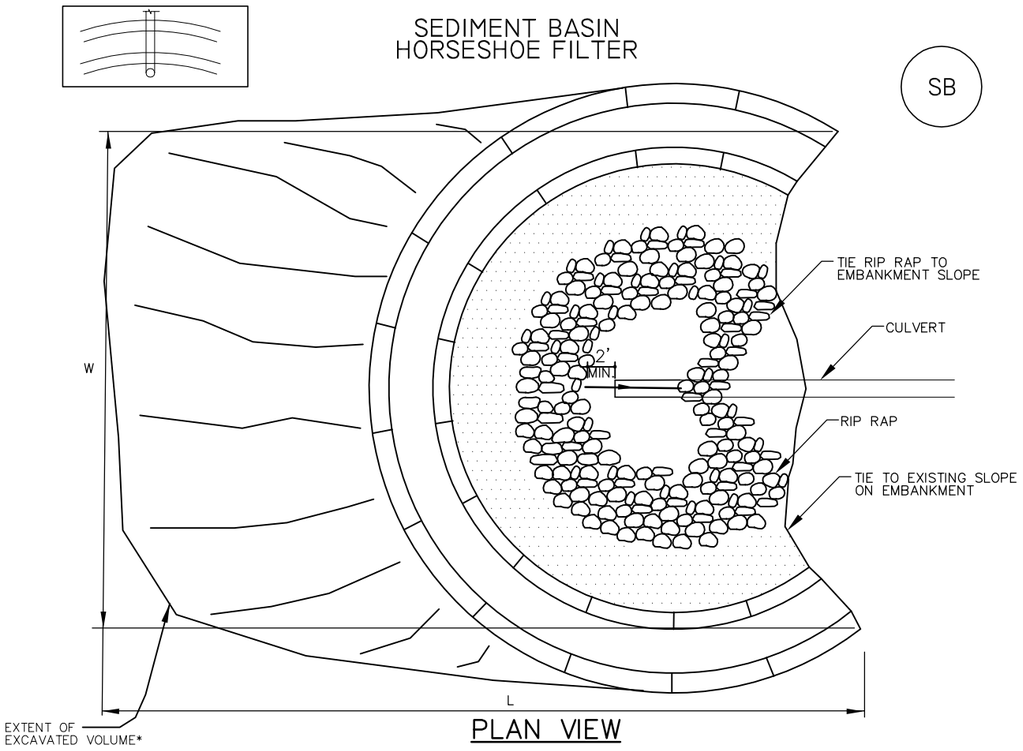
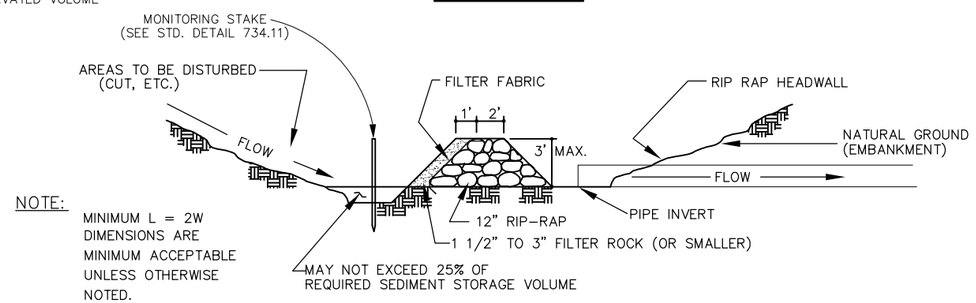
SHEET NO.
F14
OF
F17

SEDIMENT BASIN HORSESHOE FILTER

SB



PLAN VIEW



NOTE:
MINIMUM L = 2W
DIMENSIONS ARE MINIMUM ACCEPTABLE UNLESS OTHERWISE NOTED.

SECTION THRU BASIN, FILTER AND CULVERT PIPE

NO SCALE

NOTE:

GRAVEL & RIP RAP FILTER BERM BASIN DETAIL IS DESIGNED TO PROTECT EXISTING PIPE INVERTS THAT DRAIN 50 ACRES OR LESS.
* EXISTING TOPOGRAPHY MAY PROVIDE FOR REQUIRED STORAGE VOLUME WITHOUT EXCAVATION

VOLUME REQUIRED = 3600 CF / AC X TRIBUTARY ACRE
VOLUME PROVIDED = CF
BOTTOM ELEVATION =
TOP ELEVATION =

REVISED: JANUARY 2008

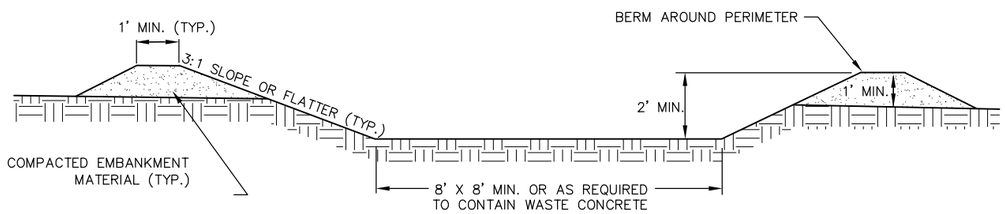
SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION SEDIMENT BASIN HORSESHOE FILTER	PLATE NUMBER 734.23

CONCRETE WASHOUT FACILITY

CWF

NOTES:

1. CONCRETE WASHOUT FACILITY SHALL BE INSTALLED PRIOR TO ANY CONCRETE PLACEMENT ON SITE.
2. A SIGN SHALL BE INSTALLED ADJACENT TO EACH WASHOUT FACILITY TO INFORM CONCRETE EQUIPMENT OPERATORS TO UTILIZE THE CWF.
3. THE CONCRETE WASHOUT FACILITY SHALL BE REPAIRED AND ENLARGED OR CLEANED OUT AS NECESSARY TO MAINTAIN CAPACITY FOR WASTED CONCRETE.
4. WHEN CWF ARE NO LONGER REQUIRED FOR THE WORK, THE HARDENED CONCRETE AND MATERIALS USED TO CONSTRUCT THE CWF SHALL BE REMOVED AND DISPOSED OF.
5. WHEN THE CONCRETE WASHOUT FACILITY IS REMOVED, THE HOLES, DEPRESSIONS OR OTHER GROUND DISTURBANCE SHALL BE BACKFILLED, REPAIRED AND STABILIZED.



CROSS SECTIONAL VIEW

REVISED: DECEMBER 2008

SPECIFICATION REFERENCE NO. 734	CITY OF SIOUX FALLS ENGINEERING DIVISION CONCRETE WASHOUT FACILITY	PLATE NUMBER 734.28

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

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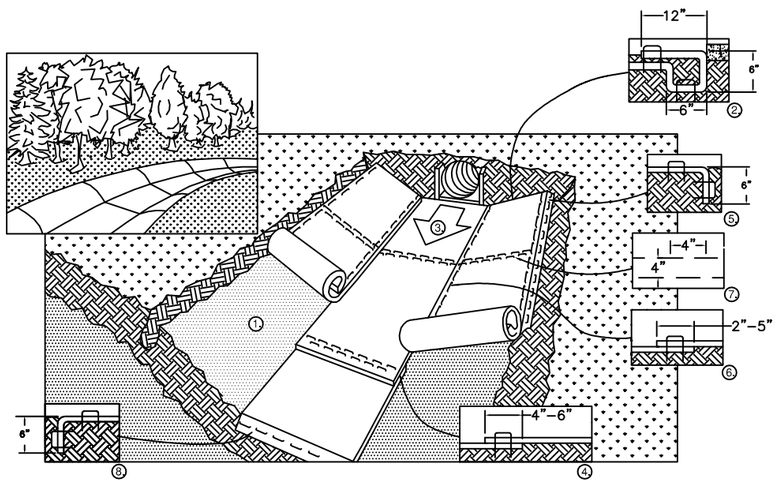
SHEET NO.
F15
OF
F17

CHANNEL INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA. CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE CHANNEL BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30 CM) OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMAPCT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) ACROSS THE WIDTH OF THE BLANKET.

3. ROLL CENTER BLANKET IN DIRECTION OF WATER FLOW IN BOTTOM OF CHANNEL. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. PLACE CONSECUTIVE BLANKETS END OVER END (SHINGLE STYLE) WITH A 4" – 6" (10 CM –15 CM) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER TO SECURE BLANKETS.

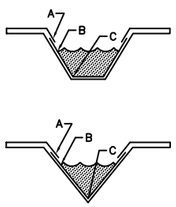
5. FULL LENGTH EDGE OF BLANKETS AT TOP OF SIDE SLOPES MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2" – 5" (5 CM –12.5 CM) (DEPENDING ON BLANKET TYPE) AND STAPLED.

7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9 M – 12 M) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10 CM) APART AND 4" (10 CM) ON CENTER OVER ENTIRE WIDTH OF THE CHANNEL.

8. THE TERMINAL END OF THE BLANKETS MUST BE ANCHORED WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.

NOTE:
* IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.



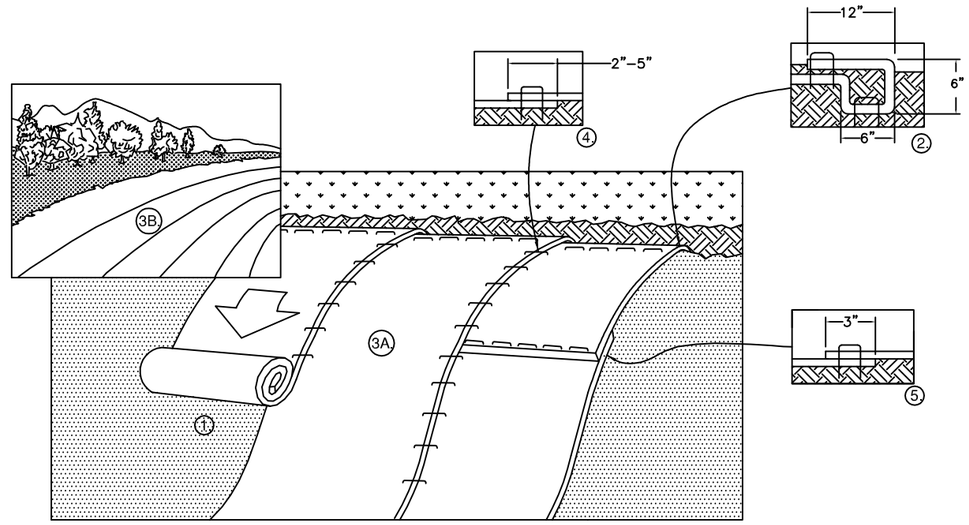
CRITICAL POINTS

A. OVERLAPS AND SEAMS
B. PROJECTED WATER LINE
C. CHANNEL BOTTOM/SIDE SLOPE VERTICES

NOTE:
* HORIZONTAL STAPLE SPACING SHOULD BE ALTERED IF NECESSARY TO ALLOW STAPLES TO SECURE THE CRITICAL POINTS ALONG THE CHANNEL SURFACE.

** IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 cm) MAY BE NECESSARY TO PROPERLY ANCHOR THE BLANKETS.

SLOPE INSTALLATION



1. PREPARE SOIL BEFORE INSTALLING BLANKETS, INCLUDING ANY NECESSARY APPLICATION OF LIME, FERTILIZER, AND SEED. NOTE: WHEN USING CELL–O–SEED DO NOT SEED PREPARED AREA. CELL–O–SEED MUST BE INSTALLED WITH PAPER SIDE DOWN.

2. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE BLANKET IN A 6" (15 CM) DEEP X 6" (15 CM) WIDE TRENCH WITH APPROXIMATELY 12" (30cm) OF BLANKET EXTENDED BEYOND THE UP–SLOPE PORTION OF THE TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" (30 CM) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30 CM) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30 CM) APART ACROSS THE WIDTH OF THE BLANKET.

3. ROLL THE BLANKETS (A.) DOWN OR (B.) HORIZONTALLY ACROSS THE SLOPE. BLANKETS WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL BLANKETS MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN GUIDE. WHEN USING THE DOT SYSTEM , STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.

4. THE EDGES OF PARALLEL BLANKETS MUST BE STAPLED WITH APPROXIMATELY 2" – 5" (5 CM – 12.5 CM) OVERLAP DEPENDING ON BLANKET TYPE.

5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5 CM) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30 CM) APART ACROSS ENTIRE BLANKET WIDTH.

NOTE:
*IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" (15 CM) MAY BE NECESSARY TO PROPERLY SECURE THE BLANKETS.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES

DESIGNED BY:
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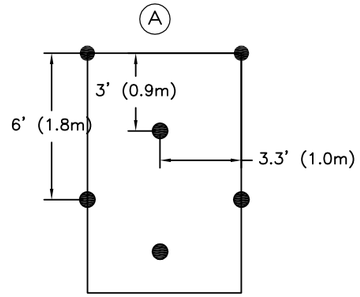
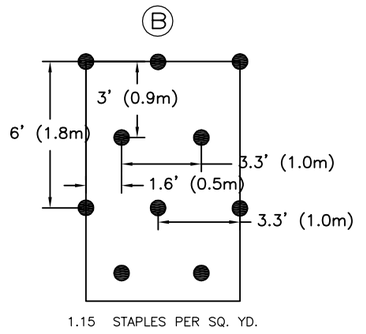
SHEET NO.
F16
OF
F17

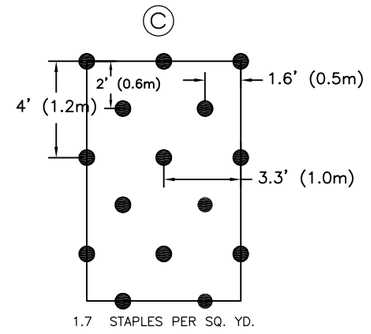
STAPLE PATTERN GUIDE
6.67' WIDE ROLLS



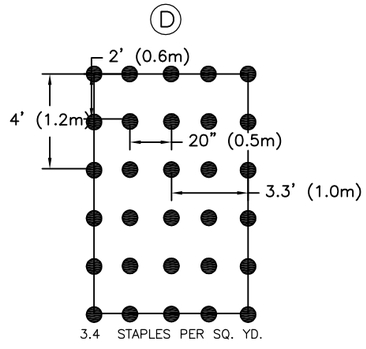
0.7 STAPLES PER SQ. YD.



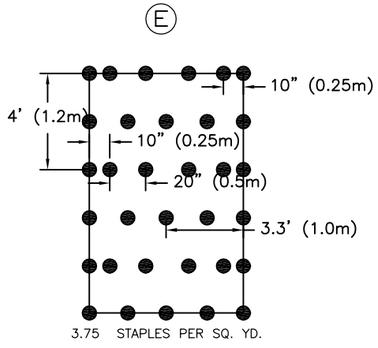
1.15 STAPLES PER SQ. YD.



1.7 STAPLES PER SQ. YD.



3.4 STAPLES PER SQ. YD.



3.75 STAPLES PER SQ. YD.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EROSION & SEDIMENT CONTROL PLAN STANDARD PLATES
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SHEET NO.
F17
OF
F17

SCALE: 1"=60'
0 30 60 FT

JAYCEE LANE (ASPHALT)

SB#1 SB#2 SB#4 SB#5 SB#6 SB#8

REMOVE 111 CONCRETE POSTS 3,814 FT OF CHAIN (INCIDENTAL)

ASPHALT (TO REMAIN)

SAW 24 LF ASPHALT PAVEMENT
REMOVE 4 SY ASPHALT PAVEMENT
REMOVE LIGHT BASE FOOTING

SAW 1384 LF EXISTING ASPHALT

INSTALL 30" CONCRETE PLUG (INCIDENTAL)

REMOVE 16.0 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE 44.9 SY CONCRETE PAVEMENT

SAW 803 FT EXISTING ASPHALT

REMOVE INLET FOR REPLACE

REMOVE 38 LF 15"RCP

REMOVE ASPHALT PAVEMENT: 44,190.4 SY

INSTALL 12" CONCRETE PLUG (INCIDENTAL)

INSTALL 15" CONCRETE PLUG (INCIDENTAL)

REMOVE 17.5 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE 15.9 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

TRANSPLANT CRABAPPLE TREE

LANDSCAPE

INSTALL 12" CONCRETE PLUG (INCIDENTAL)

REMOVE 150 LF 12"RCP

REMOVE BOLLARD: 16 EACH

REMOVE 1489.7 SY CONCRETE PAVEMENT

REMOVE BOLLARD: 2

REMOVE ENTRANCE GATE EQUIPMENT

REMOVE 406.4 SY CONCRETE SIDEWALK

REMOVE 42 LF 15"RCP

REMOVE 235 LF 15"RCP

REMOVE INLET

REMOVE INLET

REMOVE 176.2 SY CONCRETE SIDEWALK

REMOVE 473.9 SY CONCRETE PAVEMENT

REMOVE 15 LF 12"RCP
REMOVE INLET: 2 EACH

REMOVE LIGHT BASE FOOTING

REMOVE 18.8 SY CONCRETE SIDEWALK

SAW 1201 LF ASPHALT PAVEMENT
REMOVE 1681.8 SY ASPHALT PAVEMENT

REMOVE ENTRANCE GATE EQUIPMENT

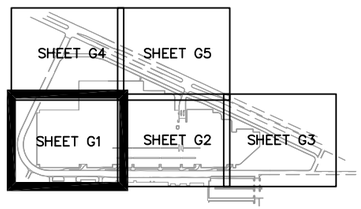
REMOVE 41 LF 12"RCP

DEMOLITION LEGEND

- CLEAR & GRUB TREE
- TRANSPLANT TREE
- REMOVE CONCRETE PAVEMENT
- REMOVE ASPHALT CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE BARRIER CONCRETE POSTS & CHAIN
- REMOVE CHAIN LINK FENCE
- REMOVE PIPE CULVERT
- REMOVE BOLLARD
- LIGHT POLE
- REMOVE PARKING METER

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EXISTING CONDITIONS & DEMOLITION PLAN

DESIGNED BY: MDW/DMS
DRAWN BY: DMS ACAD FILE: 210710_Demo.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
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SHEET NO.
G1
OF
G5

SAW 24 LF ASPHALT PAVEMENT
REMOVE 4 SY ASPHALT PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE LIGHT BASE FOOTING

ASPHALT (TO REMAIN)

SAW 500 LF EXISTING ASPHALT

REMOVE 25 LF CHAIN LINK FENCE

REMOVE EXIT BOOTH

REMOVE 57.3 SY CONCRETE SIDEWALK

REMOVE BOLLARD: 6

SB#11

REMOVE 88 LF 30"RCP

REMOVE 29.2 SY CONCRETE SIDEWALK

REMOVE BOLLARD: 2

REMOVE 21.7 SY CONCRETE PAVEMENT

REMOVE 20.1 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE 18.6 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

SB#9

REMOVE CONCRETE PAVEMENT: 397.4 SY

REMOVE EXIT GATE EQUIPMENT

REMOVE BOLLARD

REMOVE 63.7 SY CONCRETE PAVEMENT

REMOVE 108.8 SY CONCRETE PAVEMENT

REMOVE 85.6 SY CONCRETE PAVEMENT

REMOVE 58.5 SY CONCRETE PAVEMENT

SB#12

REMOVE BOLLARD: 14

REMOVE ELECTRICAL JB: 2

REMOVE BOLLARD: 2

REMOVE INLET

REMOVE CONCRETE SIDEWALK: 296.7 SY

REMOVE 12" RCP: 213 FT

REMOVE ENTRANCE GATE EQUIPMENT

REMOVE BOLLARD: 2

406.4 SY
TE SIDEWALK

REMOVE LIGHT BASE FOOTING

REMOVE LIGHT BASE FOOTING

REMOVE 673.3 SY CONCRETE SIDEWALK

REMOVE 2 PARKING METERS

REMOVE LIGHT BASE FOOTING

SB#7

REMOVE 2 PARKING METERS

REMOVE 6 PARKING METERS

SB#10

18.8 SY
TE SIDEWALK

RANCE
MENT

REMOVE ENTRANCE GATE EQUIPMENT

REMOVE 26.3 SY CONCRETE SIDEWALK

JAYCEE LANE
(ASPHALT)

SAW 57 LF ASPHALT PAVEMENT
REMOVE 388.1 SY ASPHALT PAVEMENT

TRANSPLANT MAPLE TREE

TRANSPLANT LILAC TREE

TRANSPLANT MAPLE TREE

REMOVE 507.1 SY ASPHALT PAVEMENT

REMOVE OVERHEAD CANOPY & 8 FOOTINGS

REMOVE 2 ELECTRIC JB'S

SAW 493 LF EXISTING ASPHALT

ASPHALT (TO REMAIN)

SB#13

REMOVE 426.8 SY CONCRETE PAVEMENT

REMOVE 12.9 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE 15.2 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

24"WELLMAIN

18"RCP

24"RCP

27"RCP

12"RCP

6"PVC

6"W

UE

UG

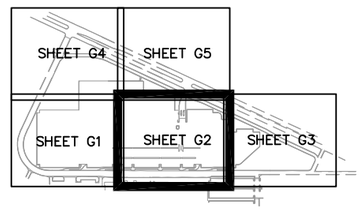
SCALE: 1"=60'
0 30 60 FT

DEMOLITION LEGEND

- CLEAR & GRUB TREE
- TRANSPLANT TREE
- REMOVE CONCRETE PAVEMENT
- REMOVE ASPHALT CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE BARRIER CONCRETE POSTS & CHAIN
- REMOVE CHAIN LINK FENCE
- REMOVE PIPE CULVERT
- REMOVE BOLLARD
- LIGHT POLE
- REMOVE PARKING METER

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EXISTING CONDITIONS & DEMOLITION PLAN

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SHEET NO.
G2
OF
G5

MINNESOTA AVENUE (NB)
(CONCRETE)

MINNESOTA AVENUE (SB)
(CONCRETE)

RECIRCULATION ROAD
(CONCRETE)

TRANSPLANT
MAPLE TREE

SW WELLMAIN

TRANSPLANT
LILAC TREE

LANDSCAPE

TRANSPLANT
CRABAPPLE TREE

UG

UE

UF

24"RCP

SB#14

REMOVE 14.9 SY CONCRETE PAVEMENT
REMOVE LIGHT BASE FOOTING

ASPHALT
(TO REMAIN)

SAW 601 LF
EXISTING ASPHALT

TRANSPLANT
CRABAPPLE TREE

TRANSPLANT
LILAC TREE

TRANSPLANT
MAPLE TREE

TRANSPLANT
HAWTHORNE TREE

TRANSPLANT
CRABAPPLE TREE

SB#15

REMOVE 226.3 SY
CONCRETE PAVEMENT

REMOVE
INLET

12"RCP

SAW 46 LF CONCRETE PAVEMENT
REMOVE 22.3 SY CONCRETE PAVEMENT

REMOVE 8.0 SY
CONCRETE PAVEMENT

REMOVE 9.4 SY
CONCRETE PAVEMENT

REMOVE 8.4 SY
CONCRETE PAVEMENT

SCALE: 1"=60'
0 30 60 FT

DEMOLITION LEGEND

- CLEAR & GRUB TREE
- TRANSPLANT TREE
- REMOVE CONCRETE PAVEMENT
- REMOVE ASPHALT CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE BARRIER CONCRETE POSTS & CHAIN
- REMOVE CHAIN LINK FENCE
- REMOVE PIPE CULVERT
- REMOVE BOLLARD
- LIGHT POLE
- REMOVE PARKING METER

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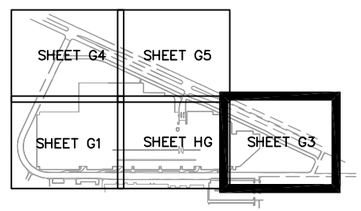
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EXISTING CONDITIONS & DEMOLITION PLAN

DESIGNED BY: MDW/DMS
DRAWN BY: DMS ACAD FILE: 210710_Demo.dwg
CHECKED BY: MDW DATE: 3/11/2021
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
G3
OF
G5

SCALE: 1"=60'
0 30 60 FT

SAW 248 LF CONCRETE PAVEMENT
REMOVE 79.5 SY CONCRETE PAVEMENT

SAW 123 LF CONCRETE PAVEMENT
REMOVE 40.3 SY CONCRETE PAVEMENT

SAW 40 LF CONCRETE PAVEMENT
REMOVE 10.2 SY CONCRETE PAVEMENT

REMOVE LIGHT
BASE FOOTING

REMOVE 973 LF
CHAIN LINK FENCE

REMOVE QUARTZITE
PAVER WALLS

MINNESOTA AVENUE (NB)
(CONCRETE)

MINNESOTA AVENUE (SB)
(CONCRETE)

LANDSCAPE

SB#3

REMOVE OVERHEAD GATE
ASSEMBLY AND EQUIPMENT

REMOVE 305.5 SY
CONCRETE PAVEMENT

REMOVE 960.9 SY
ASPHALT PAVEMENT

REMOVE LIGHT
BASE FOOTING

REMOVE
INLET

TRANSPLANT
MAPLE TREE

TRANSPLANT
MAPLE TREE

REMOVE 34 LF 12"RCP
REMOVE PIPE END SECTION

REMOVE LIGHT
BASE FOOTING

TRANSPLANT
MAPLE TREE

TRANSPLANT
MAPLE TREE

REMOVE
INLET

REMOVE 50 LF 24"RCP

JAYCEE LANE
(ASPHALT)

REMOVE 18.2 SY
CONCRETE PAVEMENT

SB#2

SAW 33 LF ASPHALT PAVEMENT
REMOVE 29.4 SY ASPHALT PAVEMENT

REMOVE 45.7 SY
CONCRETE PAVEMENT

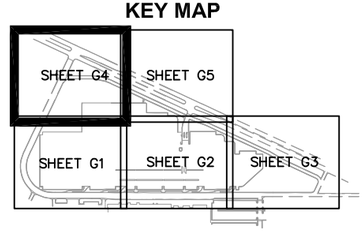
SAW 24 LF ASPHALT PAVEMENT
REMOVE 4 SY ASPHALT PAVEMENT
REMOVE LIGHT BASE FOOTING

DEMOLITION LEGEND

- CLEAR & GRUB TREE
- TRANSPLANT TREE
- REMOVE CONCRETE PAVEMENT
- REMOVE ASPHALT CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE BARRIER CONCRETE POSTS & CHAIN
- REMOVE CHAIN LINK FENCE
- REMOVE PIPE CULVERT
- REMOVE BOLLARD
- LIGHT POLE
- REMOVE PARKING METER

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

EXISTING CONDITIONS & DEMOLITION PLAN

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SHEET NO.
G4
OF
G5

REMOVAL QUANTITIES		
ITEM	UNIT	QUANT.
Remove Asphalt Concrete Pavement	SqYd	47,802
Remove Concrete Pavement	SqYd	4,569
Remove Concrete Sidewalk	SqYd	1,685
Saw Existing PCC Concrete	Ft	715
Saw Existing Asphalt	Ft	5,181
Remove Pipe Culvert	Ft	906
12IN. RCP, 453 Ft		
15IN. RCP, 315 Ft		
24IN. RCP, 50 Ft		
30IN. RCP, 88 Ft		
Remove Pipe End Section	Each	1
Remove Drop Inlet	Each	9
Remove Fence	Ft	998
Remove Overhead Gate Assembly & Equip	LS	1
Remove Barrier Concrete Posts	Each	111
Remove Bollard	Each	45
Remove Entrance & Exit Lane Equipment	LS	1
Transplant Tree	Each	44
Clear and Grub Tree	Each	18
Remove Exit Plaza Canopy	LS	1
Remove Exit Plaza Canopy Footings	Each	8
Remove Exit Plaza Booth	Each	2
Remove Parking Meters	Each	10
Remove Luminaire Pole Footing	Each	18
Remove Quartzite Paver Planter Wall	Each	2
Remove Electric Junction Box	Each	4

SCALE: 1"=60'

0 30 60 FT

DEMOLITION LEGEND

- CLEAR & GRUB TREE
- TRANSPLANT TREE
- REMOVE CONCRETE PAVEMENT
- REMOVE ASPHALT CONCRETE PAVEMENT
- REMOVE CONCRETE SIDEWALK
- REMOVE BARRIER CONCRETE POSTS & CHAIN
- REMOVE CHAIN LINK FENCE
- REMOVE PIPE CULVERT
- REMOVE BOLLARD
- LIGHT POLE
- REMOVE PARKING METER

TRANSPLANT MAPLE TREE

SAW 18 LF EXISTING ASPHALT

REMOVE 160 SY CONCRETE PAVEMENT

TRANSPLANT MAPLE TREE

SAW 24 LF ASPHALT PAVEMENT
REMOVE 4 SY ASPHALT PAVEMENT
REMOVE LIGHT BASE FOOTING

REMOVE LIGHT BASE FOOTING

ASPHALT (TO REMAIN)

SAW 196 LF CONCRETE PAVEMENT
REMOVE 235.3 SY CONCRETE PAVEMENT

SAW 62 LF CONCRETE PAVEMENT
REMOVE 91.5 SY CONCRETE PAVEMENT

SAW 43 LF ASPHALT PAVEMENT
REMOVE 36.7 SY ASPHALT PAVEMENT

SAW 57 LF ASPHALT PAVEMENT
REMOVE 388.1 SY ASPHALT PAVEMENT

TRANSPLANT

22"RCP 15"RCP 18"RCP 36"WELLMAN UG UE UF

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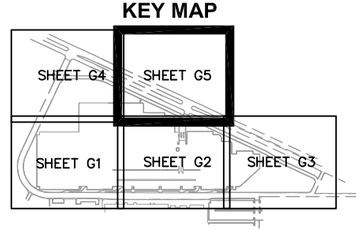
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
G5
OF
G5

*SEE SHEET H7 FOR DRAINAGE SUMMARY

EXISTING DRAINAGE SUBSYSTEM "B"

EXISTING & PROPOSED DRAINAGE SUBSYSTEM "A"

461.8 LF 24"RCP @ 0.42%

130.5 LF–12"RCP @ 0.77%

186.8 LF – 18"RCP (CL 5) @ 0.41%

AI#1

B1#1

AI#2

AI#3

NEW INLET CONSTRUCTED

GRATE INSTALLED ON AI#1 WAS SALVAGED FROM AN EXISTING INLET THAT WAS REMOVED. (GRATE = 4'X4')

EXISTING AI#3 INLET REMOVED - ALL NEW BOX INSTALLED

27"RCP

36"RCP

12"RCP

24"WELLMAIN

60"RCP

54"RCP

15"RCP

ASPHALT OVERLAY LIMITS

UE

JAYCEE LANE

B1#2

58.0 LF 12"RCP @ 1.45%

B1#3

30.0 LF 12"RCP @ 0.67%

8.7 LF 18"RCP @ 1.15%

41.6 LF 18"RCP (CLASS 5) @ 0.40%

DI#1

DI#2

DI#3

141.5 LF 18"R

AI#1
REMOVE EXISTING 5'x3' INLET COVER (INCIDENTAL)
~~1 EACH – REPLACE WITH SPECIAL FRAME & GRATE (NEENAH R–3541–A WITH TYPE "L" GRATE OR ENGINEER APPROVED EQUAL)~~
1 EACH – STORM STRUCTURE ADJUSTMENT
(ADJUST WALLS APPROX. –0.58' ON 3 SIDES
ADJUST WALL APPROX. +0.42' ON FRONT SIDE)
1 EACH – STORM FRAME & GRATE ADJUSTMENT
T/GRATE= 1420.45

B1#1
INSTALL S.F. TYPE B1 INLET
(NEENAH R–3607 WITH TYPE "VB" GRATE)
TC= 1421.80
INV. OUT (S)= 1419.13 (12")

AI#2 TO B1#1
INSTALL 130.5 LF – 12"RCP @ 0.77%

AI#2
INSTALL NEW 3'x2' AREA INLET PER S.F. PLATE 460.07
(SEE DEMO SHEET G1 FOR REMOVING EXISTING INLET)
1 EACH – SALVAGE & RESET AREA INLET FRAME & GRATE
T/GRATE= 1420.30
INV. IN (N)= 1418.13 (12")
INV. IN (S)= 1417.27 (18")
INV. OUT (E)= 1416.87 (24")

AI#2 TO A#3
INSTALL 186.8 LF – 18"RCP (CLASS 5) @ 0.41%

AI#3
~~1 EACH – CONNECT 18"RCP TO NORTH WALL OF EXISTING 4'x3' AREA INLET~~
1 EACH – STORM FRAME & GRATE ADJUSTMENT
(ADJUST APPROX. +0.17' FROM EXISTING)
T/GRATE= 1420.50
INV. OUT (N)= 1418.03 (18")

B1#2
INSTALL S.F. TYPE B1 INLET
(NEENAH R–3607 WITH TYPE "VB" GRATE)
TC= 1422.10
INV. OUT (W)= 1419.43 (12")

B1#3 TO B1#2
INSTALL 58.0 LF – 12"RCP @ 1.45%

B1#3
INSTALL S.F. TYPE B1 INLET
(NEENAH R–3607 WITH TYPE "VB" GRATE)
TC= 1421.26
INV. IN (E)= 1418.59 (12")
INV. OUT (W)= 1418.49 (12")

DI#1 TO B1#3
INSTALL 30.0 LF – 12"RCP @ 0.67%

DI#1
INSTALL 6' S.F. TYPE DROP INLET
TC= 1421.03
INV. IN (W)= 1417.99 (18")
INV. IN (E)= 1418.29 (12")
INV. OUT (S)= 1417.89 (18")

DI#1 TO DI#2
INSTALL 8.7 LF – 18"RCP @ 1.15%

DI#2
INSTALL 6' S.F. TYPE DROP INLET
TC= 1421.30
INV. IN (W)= 1418.19 (18")
INV. OUT (E)= 1418.09 (18")

DI#2 TO DI#3
INSTALL 41.6 LF – 18"RCP (CLASS 5) @ 0.40%

DI#3
1 EACH – CONNECT 18"RCP TO EAST WALL OF EXISTING 4'x2' DROP INLET
(MATCH 18" INVERT TO EXISTING INV. OUT)
TC= 1421.34
INV. OUT (E)= 1418.36 (18")

KEY MAP

H1 H2 H3 H4 H5 H6 H7 H8

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

SCALE: 1"=40'
0 20 40 FT

AS-BUILT DRAWINGS
JANUARY 2013

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

UTILITIES

DESIGNED BY: ARS/MDW
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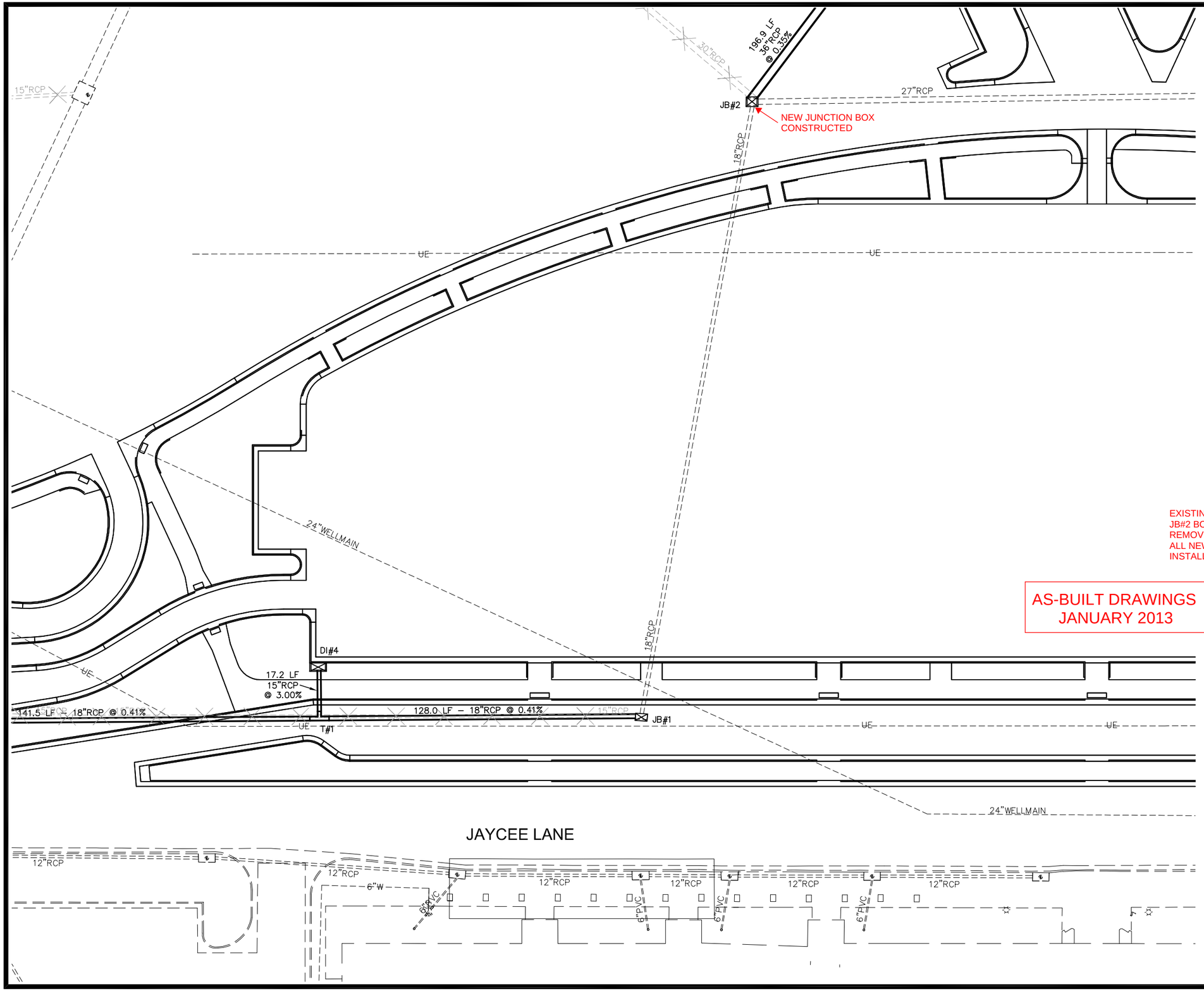
SHEET NO.
H1
OF
H8



SCALE: 1"=40'

0 20 40 FT

DI#1 TO T#1
INSTALL 141.5 LF – 18"RCP @ 0.41%

T#1
INSTALL 1 EACH – 18"x15" RCP TEE
INV. IN (N)= 1417.31 (18")
INV. IN (E)= 1417.51 (15")
INV. OUT (S)= 1417.28 (18")

T#1 TO DI#4
INSTALL 17.2 LF – 15"RCP @ 3.00%

DI#4
INSTALL 6' S.F. TYPE DROP INLET
TC= 1421.46
INV. OUT (W)= 1418.02 (15")

T#1 TO JB#1
INSTALL 128.0 LF – 18"RCP @ 0.41%

JB#1
REMOVE EXISTING 5'x3' INLET COVER (INCIDENTAL)
CONSTRUCT 5'x3' J.B. LID FOR MODIFIED S.F.
TYPE 1 JUNCTION BOX AS PER S.F. PLATE 460.05
1 EACH – STORM STRUCTURE ADJUSTMENT
(ADJUST WALLS APPROX. –0.79' ON 3 SIDES
ADJUST WALL APPROX. +0.21' ON FRONT SIDE)
1 EACH – ADJUST MANHOLE
T/RIM= 1421.78
INV. IN (N)= 1416.76 (18")
INV. OUT (S)= 1416.76 (18")

EXISTING JB#2 BOX REMOVED - ALL NEW BOX INSTALLED

JB#2
~~REMOVE EXISTING AREA INLET GRATE (INCIDENTAL)~~
~~CONSTRUCT 5'x4' J.B. LID FOR MODIFIED S.F.~~
~~TYPE 1 JUNCTION BOX AS PER S.F. PLATE 460.05~~
1 EACH – ADJUST MANHOLE
~~(APPROX. +0.82' OF ADJUSTMENT RINGS)~~
T/RIM= 1423.34
INV. IN (W)= 1414.88 (18")
INV. IN (S)= 1414.49 (27")
INV. OUT (E)= 1414.46 (36")

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
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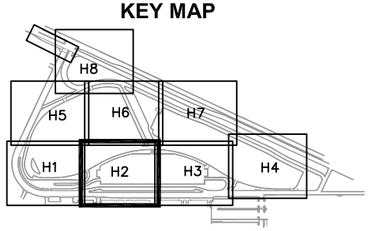
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

UTILITIES

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SHEET NO.
H2
OF
H8

SCALE: 1"=40'
0 20 40 FT

27"RCP
24"RCP
24"RCP
24"RCP
24"RCP
24"RCP
JB#3
JB#4
AI#4
UE
UE
UE
UE
UE
ASPHALT OVERLAY LIMITS
DI#5
160.7 LF – 15"RCP @ 0.60%
12"RCP
12"RCP
15"RCP
24"RCP
DI#6
12"RCP
JB#5
15"RCP CONNECTION
18"RCP
F&I 1–FIRE HYDRANT
SEE TRAFFIC CONTROL PHASE 1 FOR STREET CROSSING REQUIREMENTS
JAYCEE LANE
24"WELLMAIN
12"RCP
12"RCP
107 LF – 6"W
6"PVC
COORDINATE WATER MAIN WORK WITH TERMINAL CANOPY CONTRACTOR
6"PVC
6"PVC
6"PVC
EXCAVATE & BACKFILL FOR SMITH TAP
1 – 6"X6" SMITH TAP (BY CITY)
6"W
6"W
UE
UE

JB#3
REMOVE EXISTING 5'x3' INLET COVER (INCIDENTAL)
CONSTRUCT 5'x3' J.B. LID FOR MODIFIED S.F.
TYPE 1 JUNCTION BOX AS PER S.F. PLATE 460.05
1 EACH – STORM STRUCTURE ADJUSTMENT
(ADJUST WALLS APPROX. +0.26' ON 3 SIDES
ADJUST WALL APPROX. +1.26' ON FRONT SIDE)
1 EACH – ADJUST MANHOLE
T/RIM= 1423.28
INV. IN (S)= 1415.52 (24")
INV. OUT (N)= 1415.52 (27")

JB#4
REMOVE EXISTING AREA INLET GRATE (INCIDENTAL)
CONSTRUCT 5'x4' J.B. LID FOR MODIFIED S.F.
TYPE 1 JUNCTION BOX AS PER S.F. PLATE 460.05
1 EACH – ADJUST MANHOLE
(APPROX. +0.94' OF ADJUSTMENT RINGS)
T/RIM= 1423.13
INV. IN (E)= 1415.80 (24")
INV. IN (S)= 1415.72 (24")
INV. OUT (N)= 1415.62 (24")

AI#4
1 EACH – STORM FRAME & GRATE ADJUSTMENT
(ADJUST APPROX. +0.43' FROM EXISTING)
T/GRATE= 1420.90

15"RCP CONNECTION (27.0 LF NORTH OF DI#6)
1 EACH – CONNECT TO EXISTING 15"RCP
INV. @ CONNECTION= 1418.04 ± (15")
(VERIFY INVERT IN FIELD)

15"RCP CONNECTION TO DI#5
INSTALL 160.7 LF – 15"RCP @ 0.60%

DI#5
INSTALL 6' S.F. TYPE DROP INLET
TC= 1421.94
INV. OUT (W)= 1419.00 (15")

DI#6
REMOVE EXISTING 5'x3' INLET COVER (INCIDENTAL)
CONSTRUCT 5'x3' INLET LID FOR MODIFIED
6' S.F. TYPE DROP INLET AS PER PLATE 460.01
TC= 1421.41

JB#5
1 EACH – CONNECT 18"RCP TO SOUTH WALL OF
EXISTING 4'x4' JUNCTION BOX
INV. IN (S)= 1418.19 (18")

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

KEY MAP
H8
H5 H6 H7
H1 H2 H3 H4

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
H3
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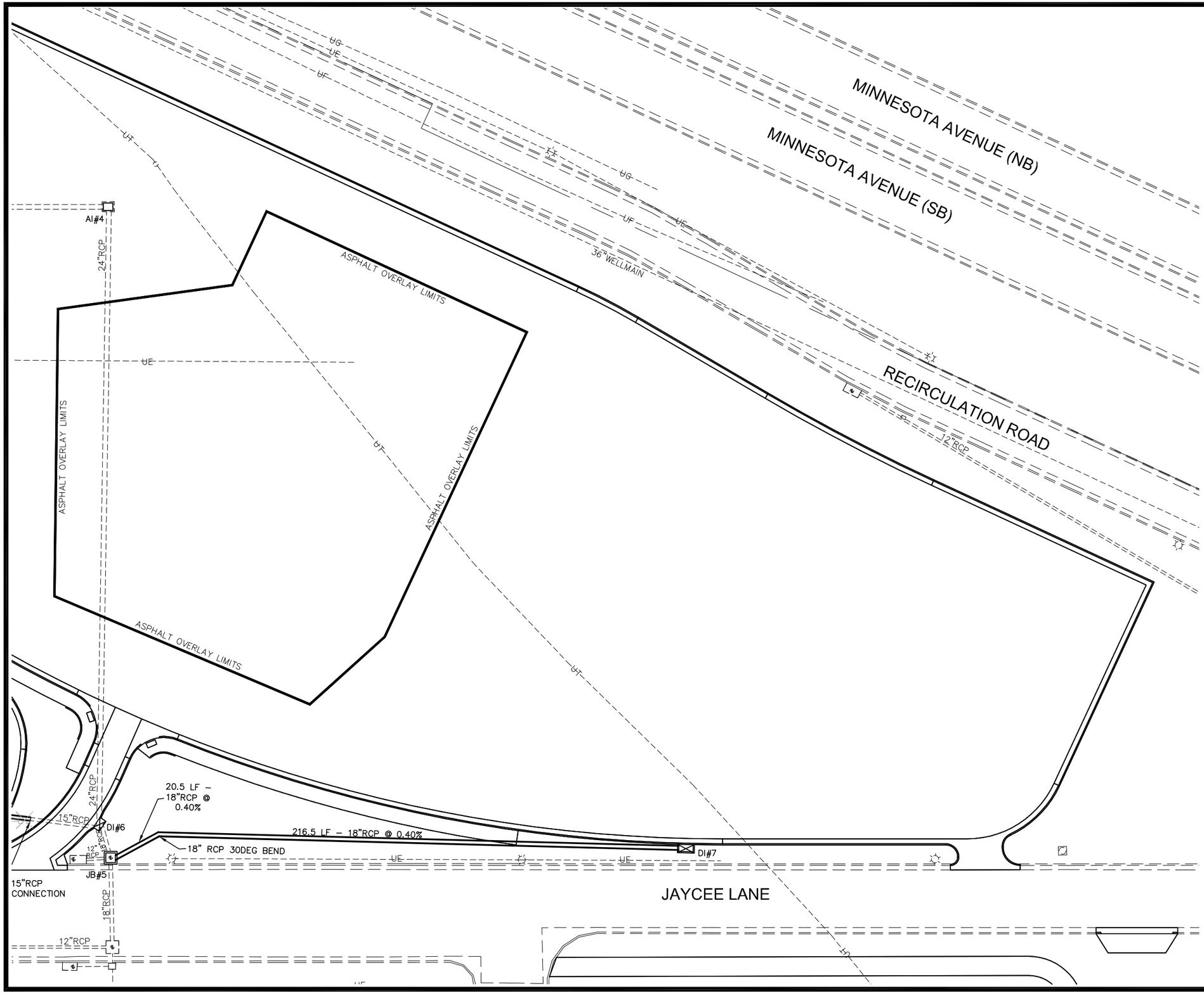
H8



AS-BUILT DRAWINGS
JANUARY 2013

AI#4
1 EACH – STORM FRAME & GRATE ADJUSTMENT
(ADJUST APPROX. +0.43' FROM EXISTING)
T/GRATE= 1420.90

DI#6
REMOVE EXISTING 5'x3' INLET COVER (INCIDENTAL)
CONSTRUCT 5'x3' INLET LID FOR MODIFIED
6' S.F. TYPE DROP INLET AS PER PLATE 460.01
TC= 1421.41

JB#5
1 EACH – CONNECT 18"RCP TO SOUTH WALL OF
EXISTING 4'x4' JUNCTION BOX
INV. IN (S)= 1418.19 (18")

JB#5 TO DI#7
INSTALL 234.5 LF – 18"RCP @ 0.40%

DI#7
INSTALL 6' S.F. TYPE DROP INLET
TC= 1422.34
INV. OUT (N)= 1419.13 (18")

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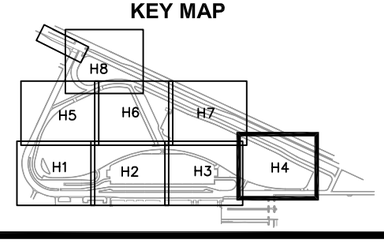
SOUTH DAKOTA

KEY MAP



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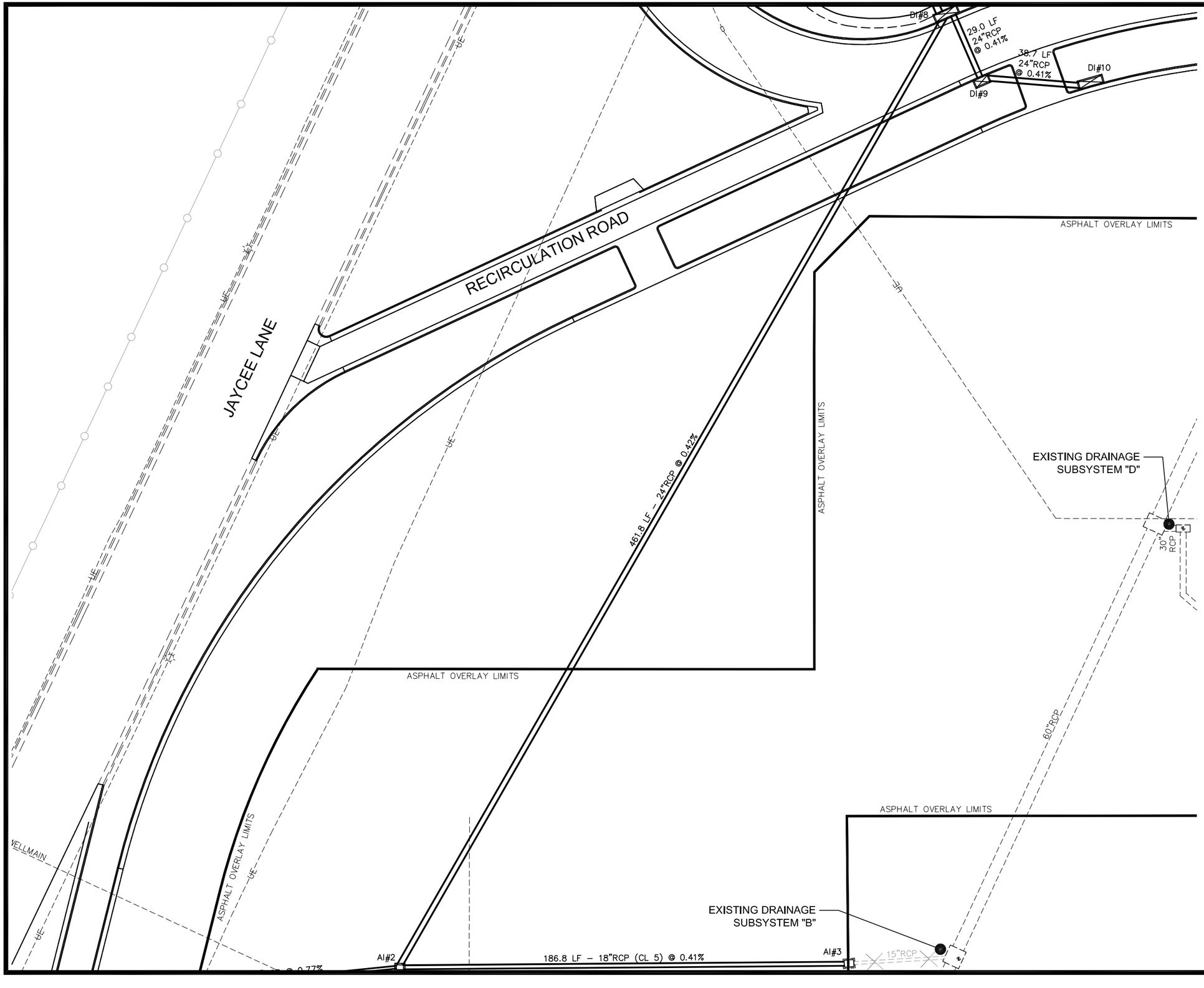

SCALE: 1"=40'
0 20 40 FT

AI#2
INSTALL NEW 3'x2' AREA INLET PER S.F. PLATE 460.07
(SEE DEMO SHEET G1 FOR REMOVING EXISTING INLET)
1 EACH – SALVAGE & RESET AREA INLET GRATE
T/GRATE= 1420.30
INV. IN (N)= 1418.13 (12")
INV. IN (S)= 1417.27 (18")
INV. OUT (E)= 1416.87 (24")

AI#2 TO DI#8
INSTALL 461.8 LF – 24"RCP @ 0.42%

DI#8
INSTALL 10' S.F. TYPE DROP INLET
TC= 1420.07
INV. IN (W)= 1414.91 (24")
INV. IN (SW)= 1414.91 (24")
INV. OUT (NE)= 1414.51 (30")

DI#8 TO DI#9
INSTALL 29.0 LF – 24"RCP @ 0.41%

DI#9
INSTALL 6' S.F. TYPE DROP INLET
TC= 1420.07
INV. IN (S)= 1415.13 (24")
INV. OUT (NE)= 1415.03 (24")

DI#9 TO DI#10
INSTALL 38.7 LF – 24"RCP @ 0.41%

DI#10
INSTALL 10' S.F. TYPE DROP INLET
TC= 1419.04
INV. OUT (N)= 1415.29 (24")

AS-BUILT DRAWINGS
JANUARY 2013

REG. NO. 5168
MARK D. WIEDERRICH

KEY MAP

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SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
H5
OF
H8

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SCALE: 1"=40'
0 20 40 FT

29.0 LF 24"RCP @ 0.41%
38.7 LF 24"RCP @ 0.41%
DI#9
DI#10
JB#7
PROPOSED DRAINAGE SUBSYSTEM "F"
PROPOSED DRAINAGE SUBSYSTEM "E"
EXISTING DRAINAGE SUBSYSTEM "C"
24"RCP
MINNESOTA AVENUE (SB)
36"WELLMAIN
UG
UT
UF
UE
RECIRCULATION ROAD
210.5 LF – 36"RCP @ 0.50%
DI#12
46.1 LF 12"RCP @ 3.00%
SANITARY HOLDING TANK
IE=1415.95
70'X6" SAN @ 1.00%
VERTICAL SEPARATION = 1.84' (12"/OVER 36")
DI#11
OUTLET STRUCTURE #1
POND 5-YR HWL
ASPHALT OVERLAY LIMITS
SANITARY CLEANOUT & 45 DEG ELBOW IE=1416.65
IE=1416.70
FF=1421.20
SOUTH BMP/DETENTION POND #1
*SEE SUMMARY
146.1 LF – 12"RCP @ 1.62%
FOREBAY DRAIN PIPE #1
10.0 LF–12" CORR. PE PIPE @ 0.50%
FE#1
31.4 LF 36"RCP @ 0.35%
JB#6
72"RCP
EXISTING DRAINAGE SUBSYSTEM "D"
30" RCP
30"RCP
60"RCP
196.9 LF – 36"RCP @ 0.35%
27"RCP
JB#2

South BMP/Detention Pond Summary

Drainage Area=	13.72 Acres	
Forebay Storage=	0.037 Ac-Ft	
WQCV=	0.604 Ac-Ft	
	5-yr	100-yr
Detention Storage=	0.445 Ac-Ft	0.606 Ac-Ft
Qin=	49.0 CFS	84.0 CFS
Qout=	44.0 CFS	77.8 CFS
Storage Elevation=	1420.50	1421.04

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SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

JB#6 TO JB#2
INSTALL 196.9 LF – 36"RCP @ 0.35%

JB#6
INSTALL 4'x4' S.F. TYPE 1 JUNCTION BOX
T/RIM= 1422.22
INV. IN (NE)= 1415.40 (12")
INV. IN (W)= 1413.82 (36")
INV. OUT (E)= 1413.82 (36")

FE#1
INSTALL 36"RCP FLARED END @ 0.35%
INV.= 1413.68

FE#1 TO JB#6
INSTALL 31.4 LF – 36"RCP @ 0.35%

JB#6 TO DI#11
INSTALL 146.1 LF – 12"RCP @ 1.62%

DI#11
INSTALL 6' S.F. TYPE DROP INLET
TC= 1420.54
INV. IN (E)= 1417.87 (12")
INV. OUT (SW)= 1417.77 (12")

DI#11 TO DI#12
INSTALL 46.1 LF – 12"RCP @ 3.00%

DI#12
INSTALL 6' S.F. TYPE DROP INLET
TC= 1422.45
INV. OUT (W)= 1419.25 (12")

JB#7
INSTALL 8'x6' SPECIAL JUNCTION BOX
T/RIM= 1421.10
INV. IN (N)= 1413.00 (30")
INV. IN (S)= 1412.00 (36")
INV. IN (W)= 1411.00 (72"–EXISTING)
INV. OUT (E)= 1410.99 (72"–EXISTING)
(SEE SHEET Q3 FOR JB#7 SPECIAL DETAIL)

JB#7 TO OUTLET STRUCTURE #1
INSTALL 210.5 LF – 36"RCP @ 0.50%

OUTLET STRUCTURE #1 (SOUTH POND)
INV. OUT (N)= 1413.06 (36")
(SEE SHEET Q1 FOR OUTLET STRUCTURE #1 DETAIL)

FOREBAY DRAIN PIPE #1
INSTALL 10.0 LF–12" CORRUGATED PE PIPE @ 0.50%
INV. IN (SW)= 1413.57
INV. OUT (NE)= 1413.52

SANITARY SEWER HOLDING TANK
F&I 1–1300 GALLON PRECAST CONCRETE
SANITARY SEWER HOLDING TANK (96"DIA x 59"H)
TOP OF TANK= 1415.55
BOTTOM OF TANK= 1410.63
INV. IN = 1415.95
TOP OF PUMP ACCESS PLUG= 1421.45

KEY MAP
H8
H5 H6 H7
H1 H2 H3 H4

UTILITIES

DESIGNED BY: ARS/MDW
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SHEET NO.
H6
OF
H8

DRAINAGE SUMMARY

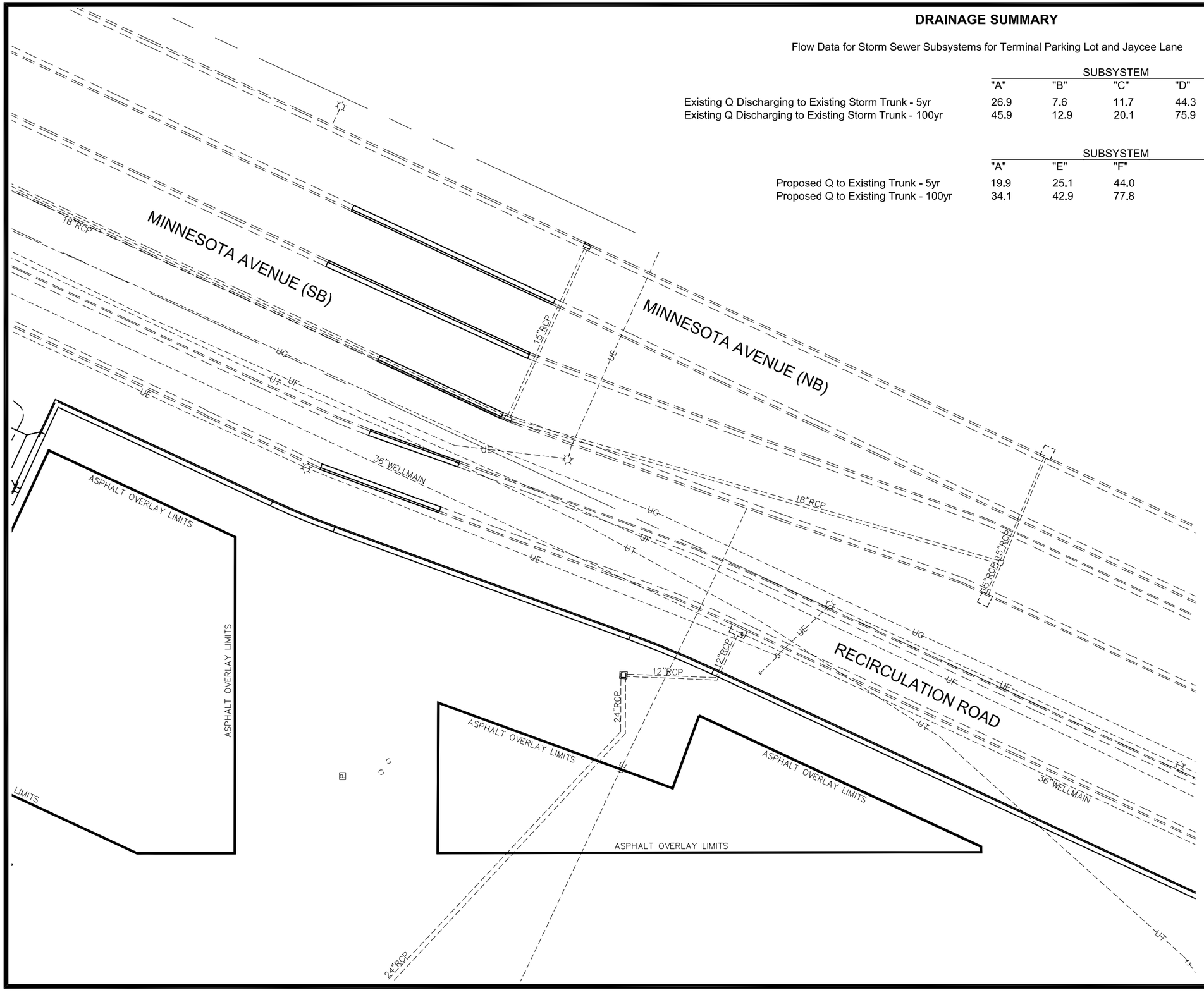
Flow Data for Storm Sewer Subsystems for Terminal Parking Lot and Jaycee Lane

	SUBSYSTEM				
	"A"	"B"	"C"	"D"	TOTAL
Existing Q Discharging to Existing Storm Trunk - 5yr	26.9	7.6	11.7	44.3	90.5 CFS
Existing Q Discharging to Existing Storm Trunk - 100yr	45.9	12.9	20.1	75.9	154.8 CFS

	SUBSYSTEM			
	"A"	"E"	"F"	TOTAL
Proposed Q to Existing Trunk - 5yr	19.9	25.1	44.0	89.0 CFS
Proposed Q to Existing Trunk - 100yr	34.1	42.9	77.8	154.8 CFS

SCALE: 1"=40'

0 20 40 FT



AS-BUILT DRAWINGS
JANUARY 2013

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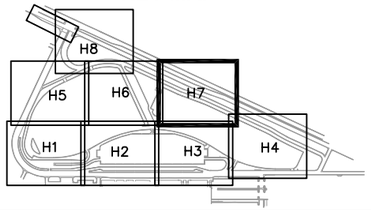
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
H7
OF
H8

SCALE: 1"=40'
0 20 40 FT

SEE RIGHT FOR SHEET CONTINUATION

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SOUTH DAKOTA

SIGNAL FOOTING W/ T-BASE
1285 LF TRAFFIC INNERDUCT CONNECT TO EXISTING JB
4 LF 2" PVC SCH40
98 LF 2" PVC SCH40
103 LF 2" RGSC
SIGNAL FOOTING W/ T-BASE
12 LF 2" RGSC
18" ELECTRIC JB
12 LF 2" PVC SCH40
CONTROLLER CABINET FOOTING
8 LF 4" RGSC
24" TRAFFIC JB
10.0 LF 12"RCP @ 3.00%
T#2
AI#5
B1#4
GRATE INSTALLED ON AI#5 WAS SALVAGED FROM AN EXISTING INLET THAT WAS REMOVED. (GRATE = 2'X3')
53 LF PVC SCH40-CONNECT TO EXISTING
87 LF BORING (10" LF 2" PVC SCH80
87 LF BORING (8 LF 3" RGSC
24" TRAFFIC JB
31 LF PVC SCH40
41 LF 2/2/4 STREET LIGHT WIRE
STREET LIGHT FOOTING(6.75 SQ) & RESET LIGHT
5 LF PVC SCH40-CONNECT TO EXISTING
STREET LIGHT AND FOOTING NOT INSTALLED
SIGNAL FOOTING W/ T-BASE
6 LF 2" RGSC
36 LF 2" RGSC
METER PEDESTAL
RESET ELECTRIC JB
15"RCP
72"RCP
18"RCP
MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
JAYCEE LANE
UE UG UF UT

North BMP Pond #2 Summary

Drainage Area=	8.33 Acres
WQCV=	0.372 Ac-Ft
Forebay Storage=	0.041 Ac-Ft

36"WELLMAIN
POND 5-YR HWL
FOREBAY DRAIN PIPE #2
10.0 LF-12" CORR. PE PIPE @ 0.50%
NORTH BMP POND #2
*SEE SUMMARY
12"RCP
OUTLET STRUCTURE #2
124.7 LF 30"RCP @ 0.57%
FE#2
8.0 LF 30"RCP @ 0.60%
DI#8
29.0 LF 24"RCP @ 0.41%
461.8 LF 24"RCP @ 0.42%
DI#9
38.7 LF 24"RCP @ 0.41%
DI#10
JB#7
PROPOSED DRAINAGE SUBSYSTEM "E"
PROPOSED DRAINAGE SUBSYSTEM "F"
24"RCP
210.5 LF - 36"RCP

JB#7
INSTALL 8'x6' SPECIAL JUNCTION BOX
T/RIM= 1421.10
INV. IN (N)= 1413.00 (30")
INV. IN (S)= 1412.00 (36")
INV. IN (W)= 1411.00 (72"-EXISTING)
INV. OUT (E)= 1410.99 (72"-EXISTING)
(SEE SHEET Q3 FOR JB#7 SPECIAL DETAIL)

JB#7 TO OUTLET STRUCTURE #2
INSTALL 124.7 LF - 30"RCP @ 0.57%

OUTLET STRUCTURE #2 (NORTH POND)
INV. OUT (S)= 1413.71 (30")
(SEE SHEET Q2 FOR OUTLET STR. #2 DETAIL)

FOREBAY DRAIN PIPE #2
INSTALL 10.0 LF-12" CORRUGATED PE PIPE @ 0.50%
INV. IN (NW)= 1414.31
INV. OUT (SE)= 1414.26

FE#2
INSTALL 30"RCP FLARED END @ 0.60%
INV.= 1414.42

FE#2 TO DI#8
INSTALL 8.0 LF - 30"RCP @ 0.60%

DI#8
INSTALL 10' S.F. TYPE DROP INLET
TC= 1420.07
INV. IN (W)= 1414.91 (24")
INV. IN (SW)= 1414.91 (24")
INV. OUT (NE)= 1414.51 (30")

DI#8 TO DI#9
INSTALL 29.0 LF - 24"RCP @ 0.41%

DI#9
INSTALL 6' S.F. TYPE DROP INLET
TC= 1420.07
INV. IN (S)= 1415.13 (24")
INV. OUT (NE)= 1415.03 (24")

DI#9 TO DI#10
INSTALL 38.7 LF - 24"RCP @ 0.41%

DI#10
INSTALL 10' S.F. TYPE DROP INLET
TC= 1419.04
INV. OUT (N)= 1415.29 (24")

AI#5
SALVAGE FOR RESET TYPE B FRAME & GRATE
~~1 EACH - REPLACE WITH SPECIAL FRAME & GRATE (NEENAH R-3067-C WITH TYPE "L" GRATE OR ENGINEER APPROVED EQUAL)~~

T#2
~~CONSTRUCT 1 EACH - 18"x12" BOOT CONNECTION (SEE SHEET Q10 FOR S.F. PLATE 450.13 SP)~~
INV. IN (W)= 1418.8 ± (12") CONCRETE
INV. OUT (S)= 1418.5 ± (18") COLLAR USED FOR CONNECTION
(VERIFY INVERTS IN FIELD)

T#2 TO B1#4
INSTALL 10.0 LF - 12"RCP @ 3.00%

B1#4
INSTALL 3'X2' S.F. TYPE B1 INLET (S.F. PLATE 460.07)
1 EACH - RESET SALVAGED TYPE B FRAME & GRATE
TC= 1422.77
INV. OUT (E)= 1419.1 ± (12")

SCALE: 1"=40'
0 20 40 FT

MINNESOTA AVENUE (SB)
UT UF UG UE
18"RCP
15"RCP
JB
10.0 LF 12"RCP @ 3.00%
B1#4
T#2
AI#5

CONTINUED FROM UPPER LEFT

AS-BUILT DRAWINGS
JANUARY 2013

KEY MAP
H8 H5 H6 H7 H1 H2 H3 H4

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

UTILITIES

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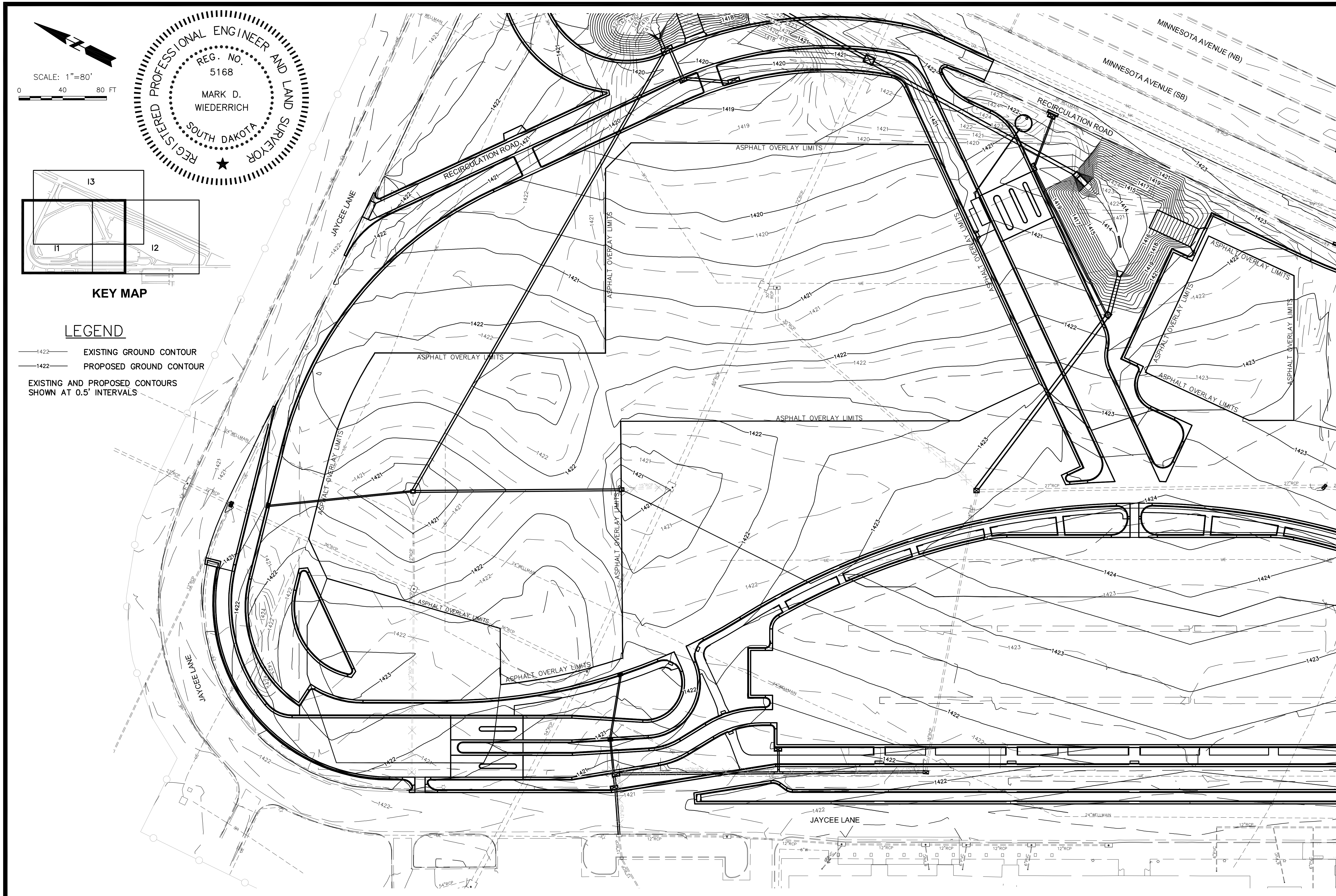
H8
OF
H8


SCALE: 1"=80'
0 40 80 FT
REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA
I3
I1
I2
KEY MAP
LEGEND
1422 EXISTING GROUND CONTOUR
1422 PROPOSED GROUND CONTOUR
EXISTING AND PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS
MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
RECIRCULATION ROAD
RECIRCULATION ROAD
JAYCEE LANE
JAYCEE LANE
JAYCEE LANE
ASPHALT OVERLAY LIMITS
24" WELLMAIN
27" RCP

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GRADING

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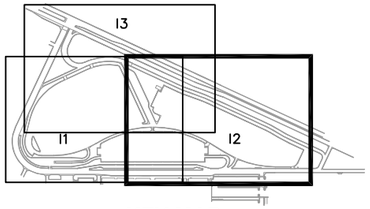
SHEET NO.
I1
OF
I5

LEGEND

1422 EXISTING GROUND CONTOUR

1422 PROPOSED GROUND CONTOUR

EXISTING AND PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS



KEY MAP

SCALE: 1"=80'

0 40 80 FT

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SOUTH DAKOTA

MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
RECIRCULATION ROAD
JAYCEE LANE
ASPHALT OVERLAY LIMITS
36"WELL MAIN
24"WELL MAIN
18"RCP
24"RCP
27"RCP
12"RCP
6"W

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
12
OF
15

LEGEND

1422 EXISTING GROUND CONTOUR

1422 PROPOSED GROUND CONTOUR

EXISTING AND PROPOSED CONTOURS SHOWN AT 0.5' INTERVALS

KEY MAP

SCALE: 1"=80'

0 40 80 FT

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

LEGEND

■	NO EXCAVATION – ASPHALT OVERLAY
▨	EXCAVATE ASPHALT ONLY – FILL WITH SALVAGED BASE TO 6" BELOW ASPHALT. TOP 6" OF BASE SHALL BE NEW AGGREGATE BASE.
▨	EXCAVATE TO SUBGRADE – SALVAGE BASE COURSE WHEN AVAILABLE. SCARIFY AND RECOMPACT SUBGRADE, PLACE SALVAGED BASE IN BOTTOM 6" OF BASE COURSE. TOP 6" OF BASE COURSE SHALL BE NEW AGGREGATE BASE.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GRADING – EXCAVATION OVERVEIW
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DATE:

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SHEET NO.
14
OF
15

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

SCALE: 1"=100'
0 50 100 FT

LEGEND

NO EXCAVATION – ASPHALT OVERLAY

EXCAVATE ASPHALT ONLY – FILL WITH SALVAGED BASE TO 6" BELOW ASPHALT. TOP 6" OF BASE SHALL BE NEW AGGREGATE BASE.

EXCAVATE TO SUBGRADE – SALVAGE BASE COURSE WHEN AVAILABLE. SCARIFY AND RECOMPACT SUBGRADE, PLACE SALVAGED BASE IN BOTTOM 6" OF BASE COURSE. TOP 6" OF BASE COURSE SHALL BE NEW AGGREGATE BASE.

MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
RECIRCULATION ROAD
ASPHALT OVERLAY LIMITS
JAYCEE LANE

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GRADING - EXCAVATION OVERVIEW

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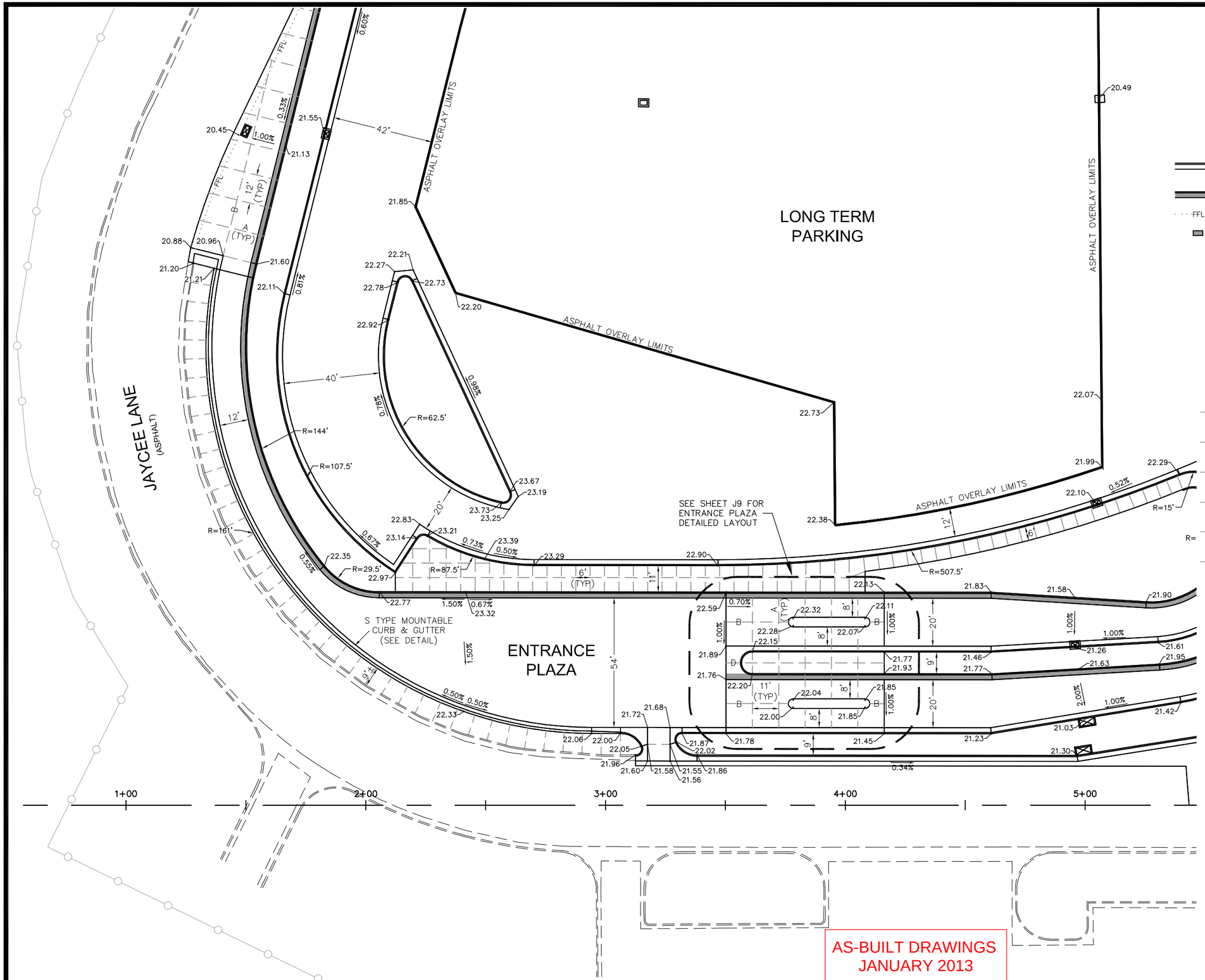
15
OF
15



SCALE: 1"=40'
0 20 40 FT

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

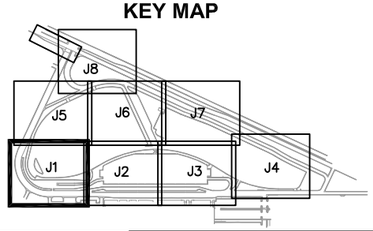
ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



AS-BUILT DRAWINGS
JANUARY 2013

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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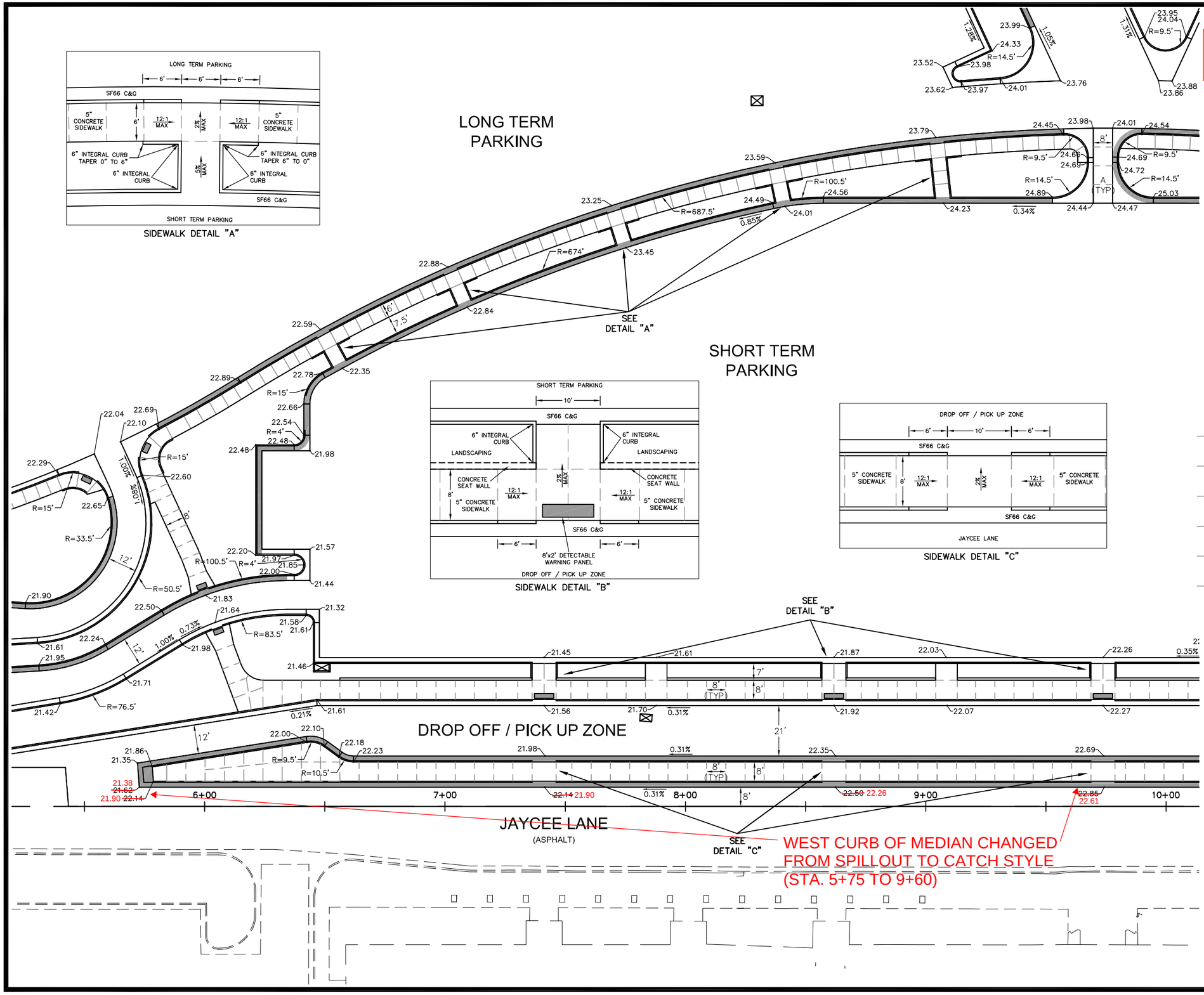
SHEET NO.
J1
OF
J9

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=40'
0 20 40 FT

SIDEWALK DETAIL "A"



SIDEWALK DETAIL "B"

SIDEWALK DETAIL "C"

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
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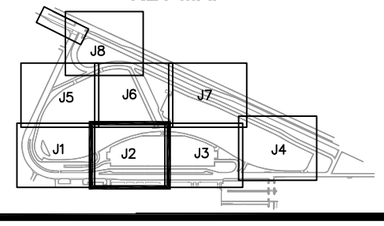
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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SHEET NO.
J2
OF
J9

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=40'
0 20 40 FT

LONG TERM PARKING

SHORT TERM PARKING

SEE DETAIL "A"

INSTALL 1– BOLLARD/CHAIN BARRIER ASSEMBLY

SEE DETAIL "B"

DROP OFF / PICK UP ZONE

SEE DETAIL "C"

JAYCEE LANE
(ASPHALT)

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

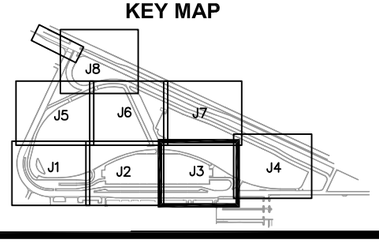
ASPHALT OVERLAY LIMITS

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

DESIGNED BY: STZ/MDW
DRAWN BY: STZ
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Curb_Gutter.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
J3
OF
J9

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=40'
0 20 40 FT

MINNESOTA AVENUE (NB)
(CONCRETE)
MINNESOTA AVENUE (SB)
(CONCRETE)
RECIRCULATION ROAD
(ASPHALT)
LONG TERM
PARKING
JAYCEE LANE
(ASPHALT)
ASPHALT OVERLAY LIMITS
INSTALL 1- BOLLARD/CHAIN BARRIER ASSEMBLY
15+00 16+00 17+00 18+00 19+00

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

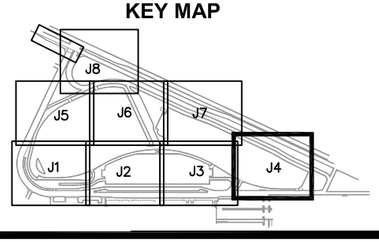
ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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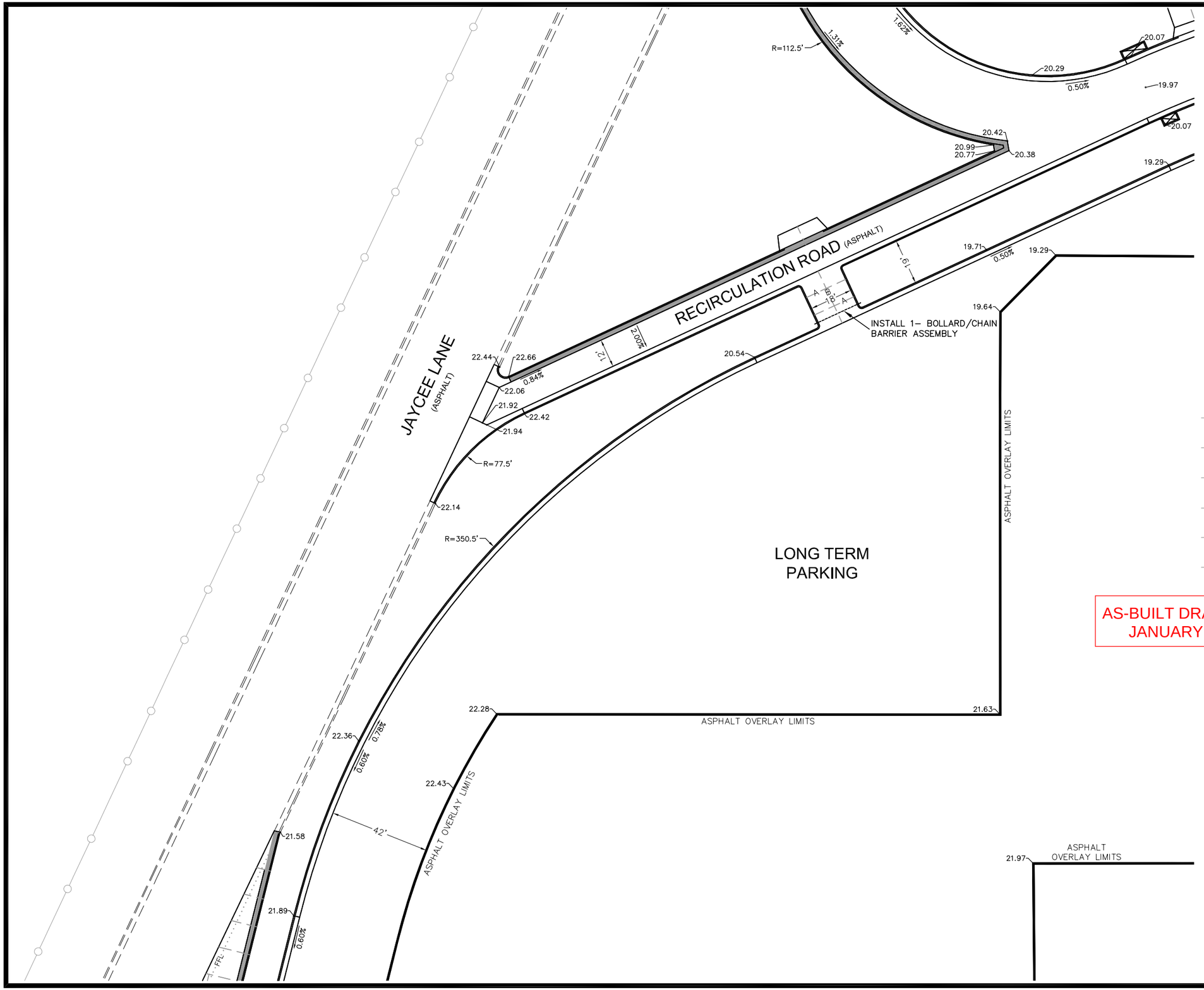
SHEET NO.
J4
OF
J9



SCALE: 1"=40'

0 20 40 FT

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
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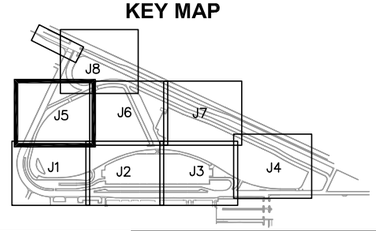
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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FSD SIOUX FALLS REGIONAL AIRPORT

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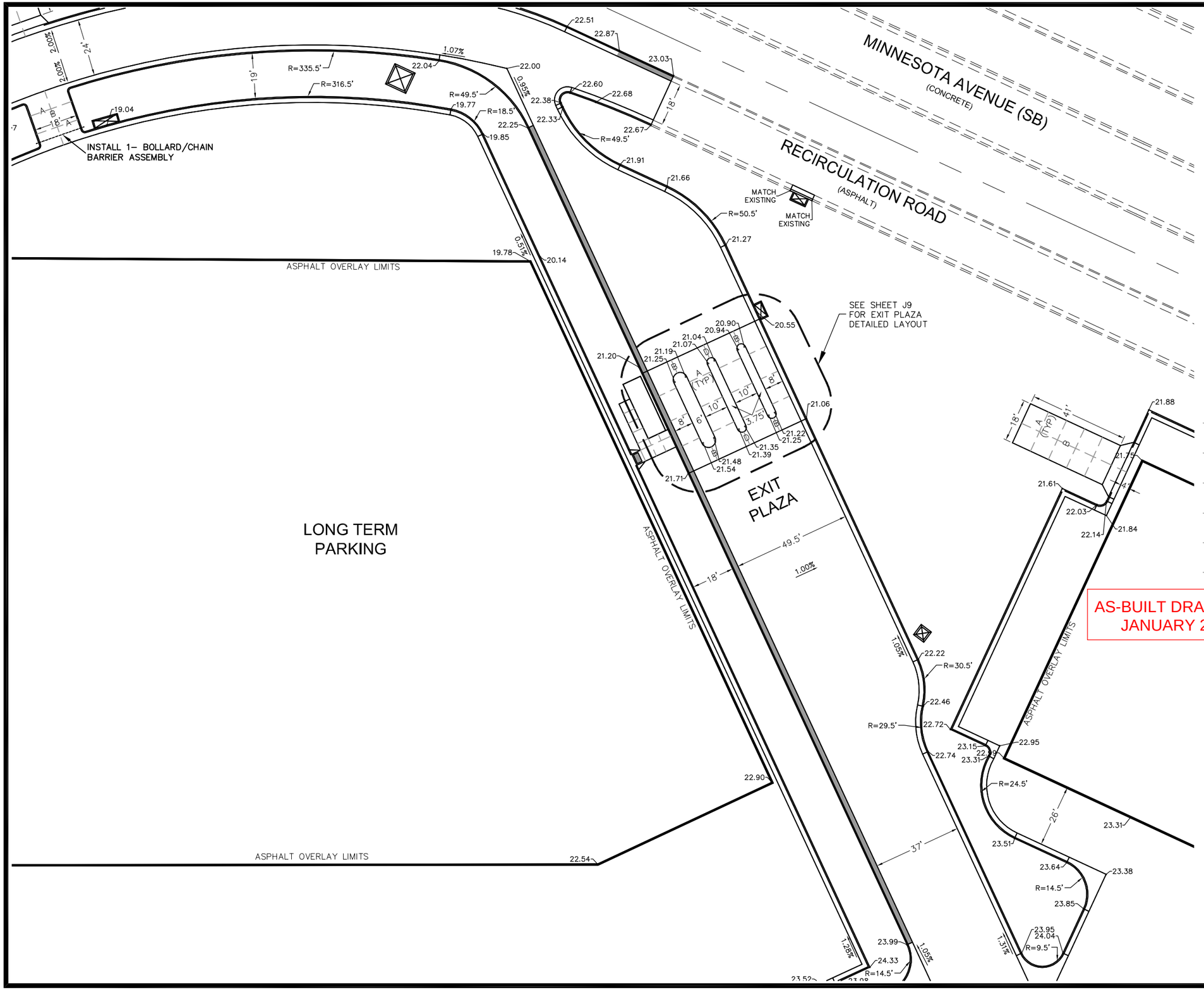
SHEET NO.
J5
OF
J9



LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
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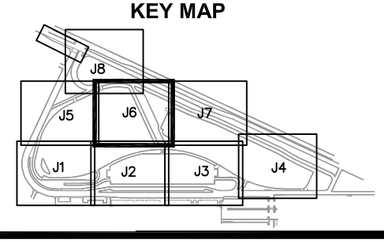
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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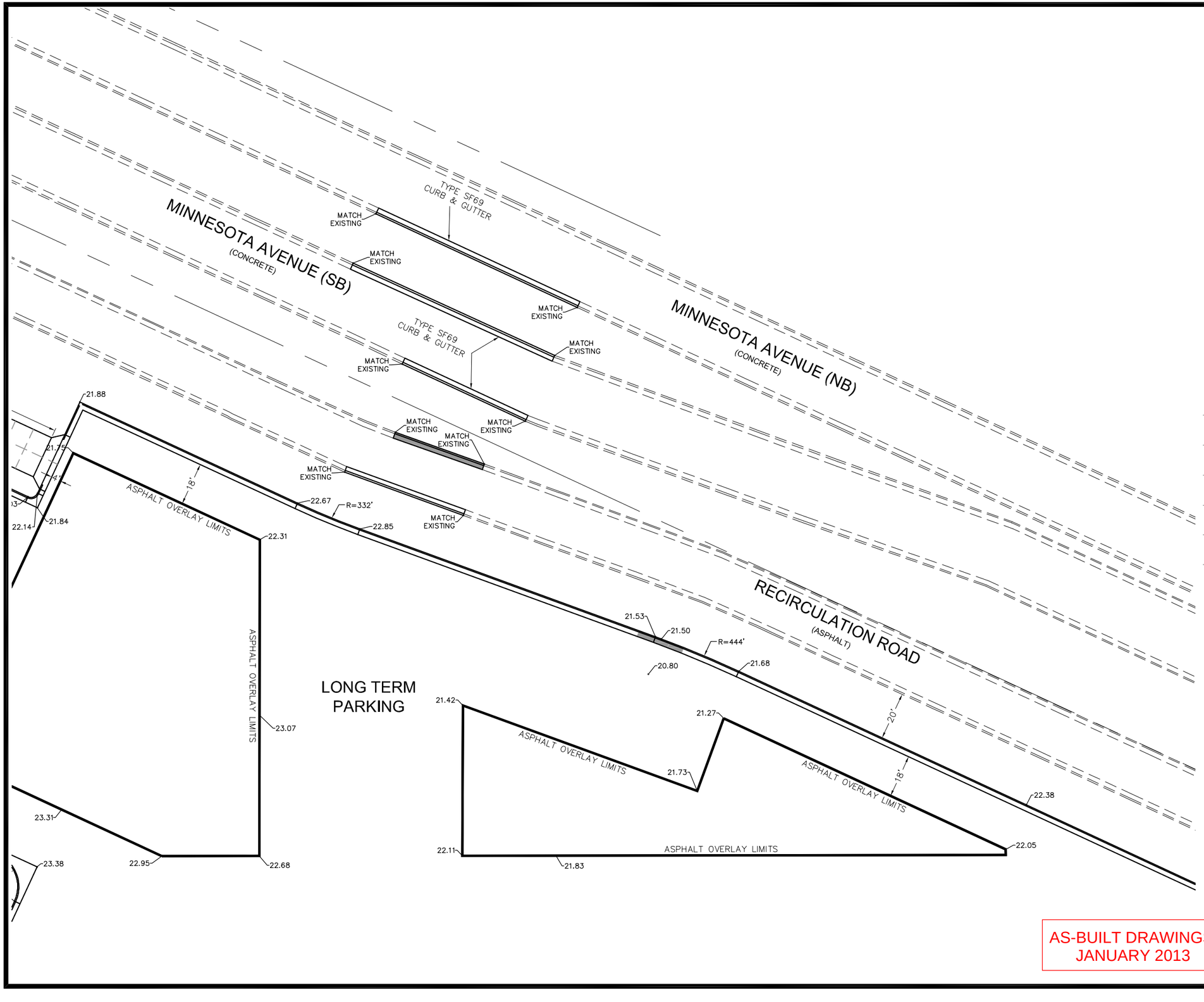
SHEET NO.
J6
OF
J9



SCALE: 1"=40'

0 20 40 FT

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
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- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
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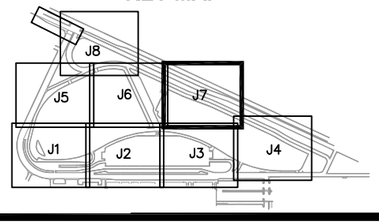
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



AS-BUILT DRAWINGS
JANUARY 2013

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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SHEET NO.
J7
OF
J9

LEGEND

- CURB & GUTTER, TYPE SF66 (UNLESS NOTED OTHERWISE)
- SPILLOUT CURB & GUTTER, TYPE SF66
- FFL — FORMED FLOW LINE
- DETECTABLE WARNING PANEL (4'x2')

ALL PCC PAVEMENT SHALL BE 6" THICK UNLESS NOTED OTHERWISE

ALL CURB AND GUTTER SHALL BE TIED TO ADJACENT PCC WITH KEYWAY JOINT AND REBAR (DETAIL 380.07)

ALL CURB RADII SHALL BE 3' BACK OF CURB UNLESS NOTED OTHERWISE

SCALE: 1"=40'
0 20 40 FT

PCC PAVEMENT JOINTS

- A — TRANSVERSE CONTRACTION JOINT (DETAIL 380.04SP)
- B — SAWED LONGITUDINAL JOINT (DETAIL 380.06)
- C — KEYWAY LONGITUDINAL JOINT WITH TIE BARS (DETAIL 380.07)
- D — KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS (DETAIL 380.08)
- E — LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS (DETAIL 380.09)
- F — DOWEL BAR INSTALLATION IN TRANSVERSE JOINT (DETAIL 380.14)

MINNESOTA AVENUE (NB)
(CONCRETE)

MINNESOTA AVENUE (SB)
(CONCRETE)

JAYCEE LANE
(ASPHALT)

EXIT PLAZA

TYPE SF69 CURB & GUTTER

9" PCC PAVEMENT

ISLAND ELIMINATED

BACK OF CURB RADIUS = 29.5'

INSTALL 1– BOLLARD/CHAIN BARRIER ASSEMBLY

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=40'
0 20 40 FT

MINNESOTA AVENUE (SB)
(CONCRETE)

JAYCEE LANE

TYPE SF69 CURB & GUTTER

9" PCC PAVEMENT

KEY MAP

J1 J2 J3 J4 J5 J6 J7 J8

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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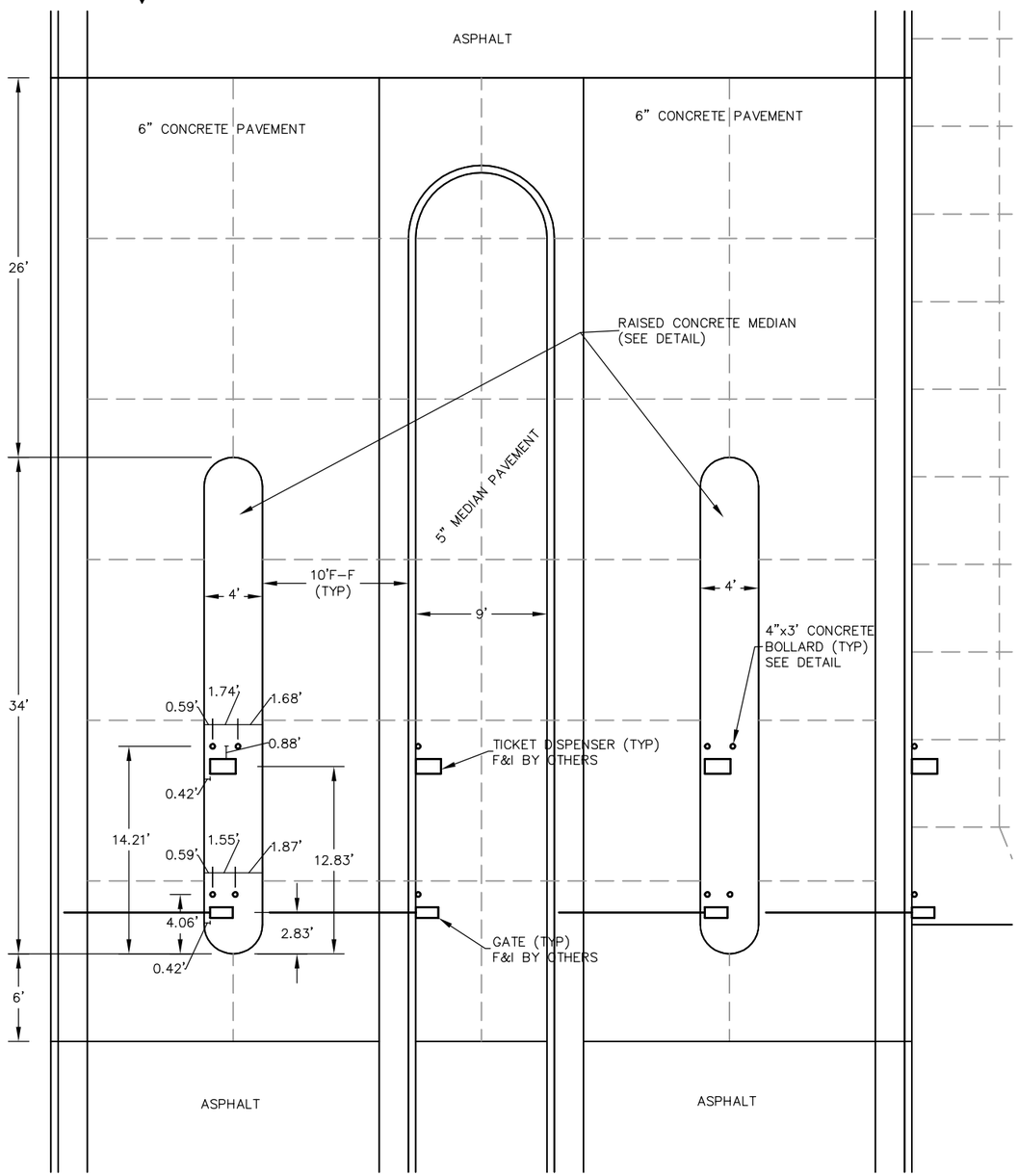
SHEET NO.
J8
OF
J9

ENTRANCE PLAZA

SCALE: 1"=10'
0 5 10 FT

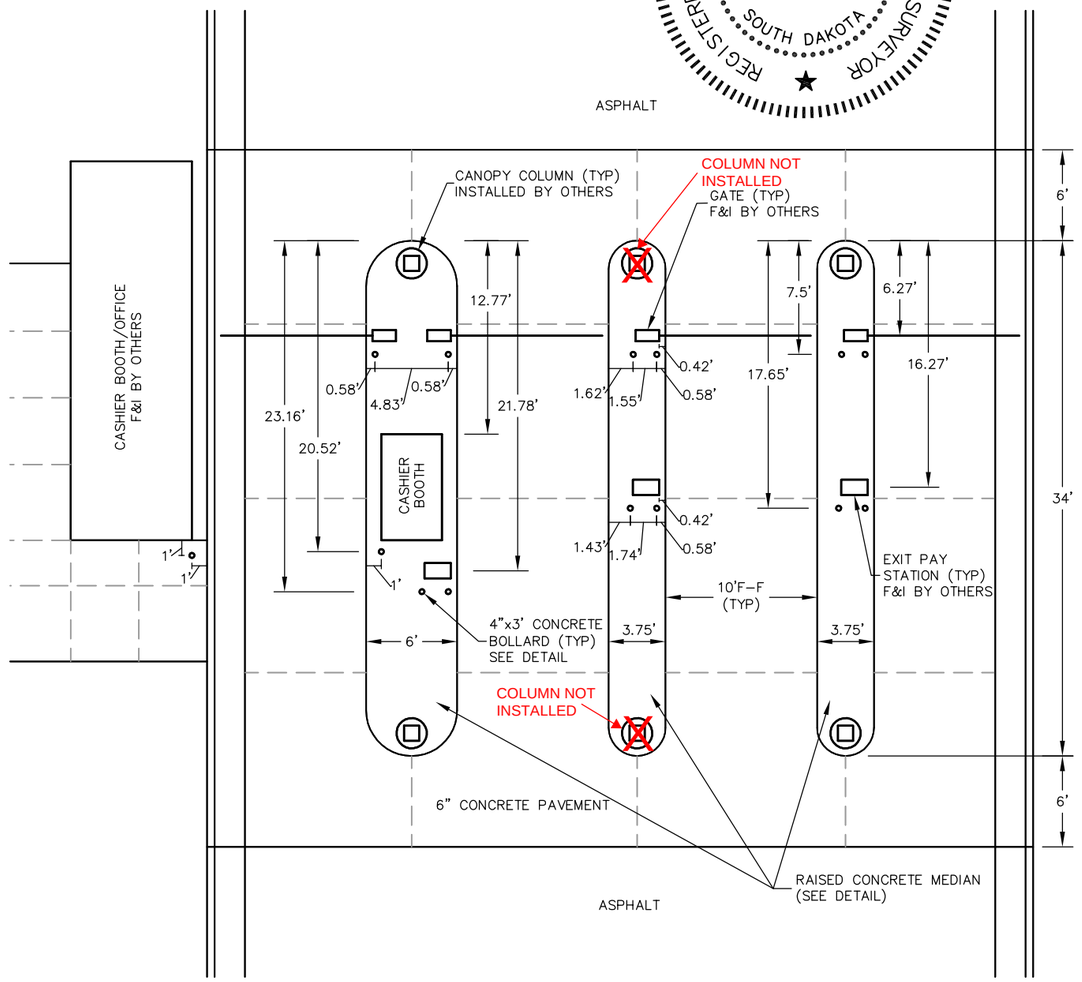


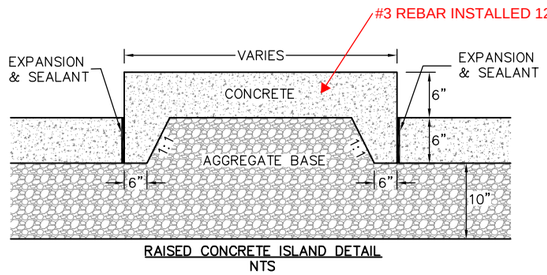
EXIT PLAZA

SCALE: 1"=10'
0 5 10 FT

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA





RAISED CONCRETE ISLAND DETAIL
NTS

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CURB & GUTTER AND PAVEMENT LAYOUT

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SHEET NO.
J9
OF
J9

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=100'
0 50 100 FT

SEE CURB AND GUTTER SECTION FOR NEW MINNESOTA AVE. EXIT LAYOUT

LEGEND

- 4" ASPHALT CONCRETE COMPOSITE (PARKING LOTS) 5" ASPHALT CONCRETE COMPOSITE (JAYCEE LANE, RECIRCULATION ROAD, ENTRANCE & EXIT PLAZAS)
- 2" ASPHALT OVERLAY
- 2" ASPHALT MILL AND OVERLAY
- 6" NONREINFORCED PCC OR 9" NONREINFORCED PCC FOR MINNESOTA AVE TURN LANE AND MINNESOTA AVE EXIT INTERSECTION

EXISTING ASPHALT
EXIT
6" MEDIAN PAVEMENT
EXISTING CONCRETE
MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
EXISTING ASPHALT
RECIRCULATION ROAD
6" VALLEY GUTTER
RECIRCULATION ROAD
JAYCEE LANE
CONCRETE FOUNDATION (BY OTHERS)
6" RAISED CONCRETE ISLAND
5" CONCRETE SIDEWALK
EXIT PLAZA
LONG TERM PARKING
LONG TERM PARKING
5" CONCRETE SIDEWALK
SHORT TERM PARKING
5" CONCRETE SIDEWALK
6" MEDIAN PAVEMENT
5" CONCRETE SIDEWALK
6" RAISED CONCRETE ISLAND
ENTRANCE PLAZA
5" CONCRETE SIDEWALK
DROP OFF / PICK UP ZONE
5" CONCRETE SIDEWALK
EXISTING ASPHALT
5" CONCRETE SIDEWALK
JAYCEE LANE
EXISTING ASPHALT
JAYCEE LANE
12'L x 3"H ASPHALT SPEED HUMPS ADDED
12'L x 3"H ASPHALT SPEED HUMPS ADDED
AIRPORT TERMINAL

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SURFACING

DESIGNED BY: STZ/MDW
DRAWN BY: STZ ACAD FILE: 210710_Surfacing.dwg
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REVISIONS: BY: DATE:
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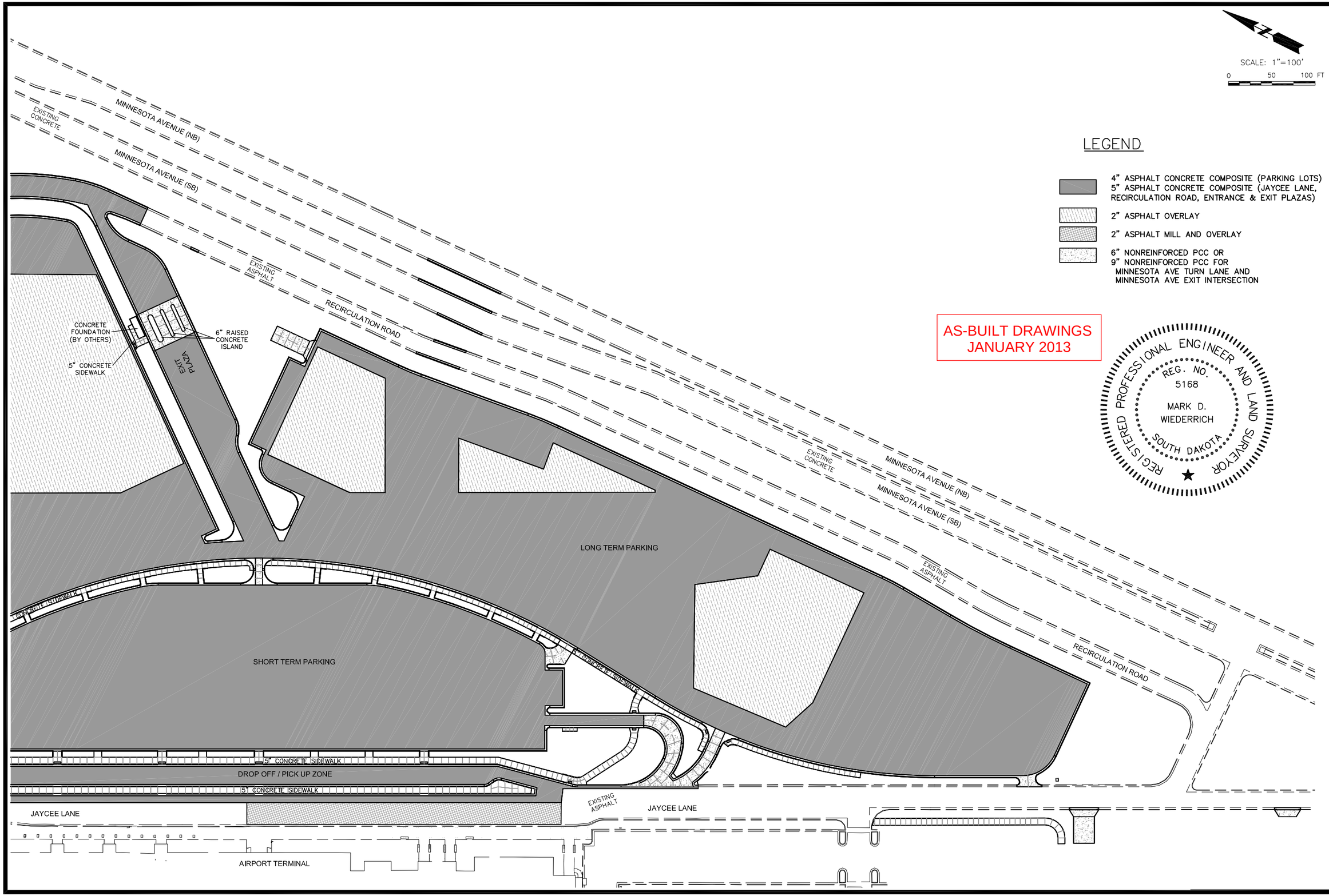
SHEET NO.
K1
OF
K2



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SURFACING

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ACAD FILE: 210710_Surfacing.dwg
DATE: 3/11/2011
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DATE:
BY:
DATE:

FSD
SIOUX FALLS REGIONAL AIRPORT

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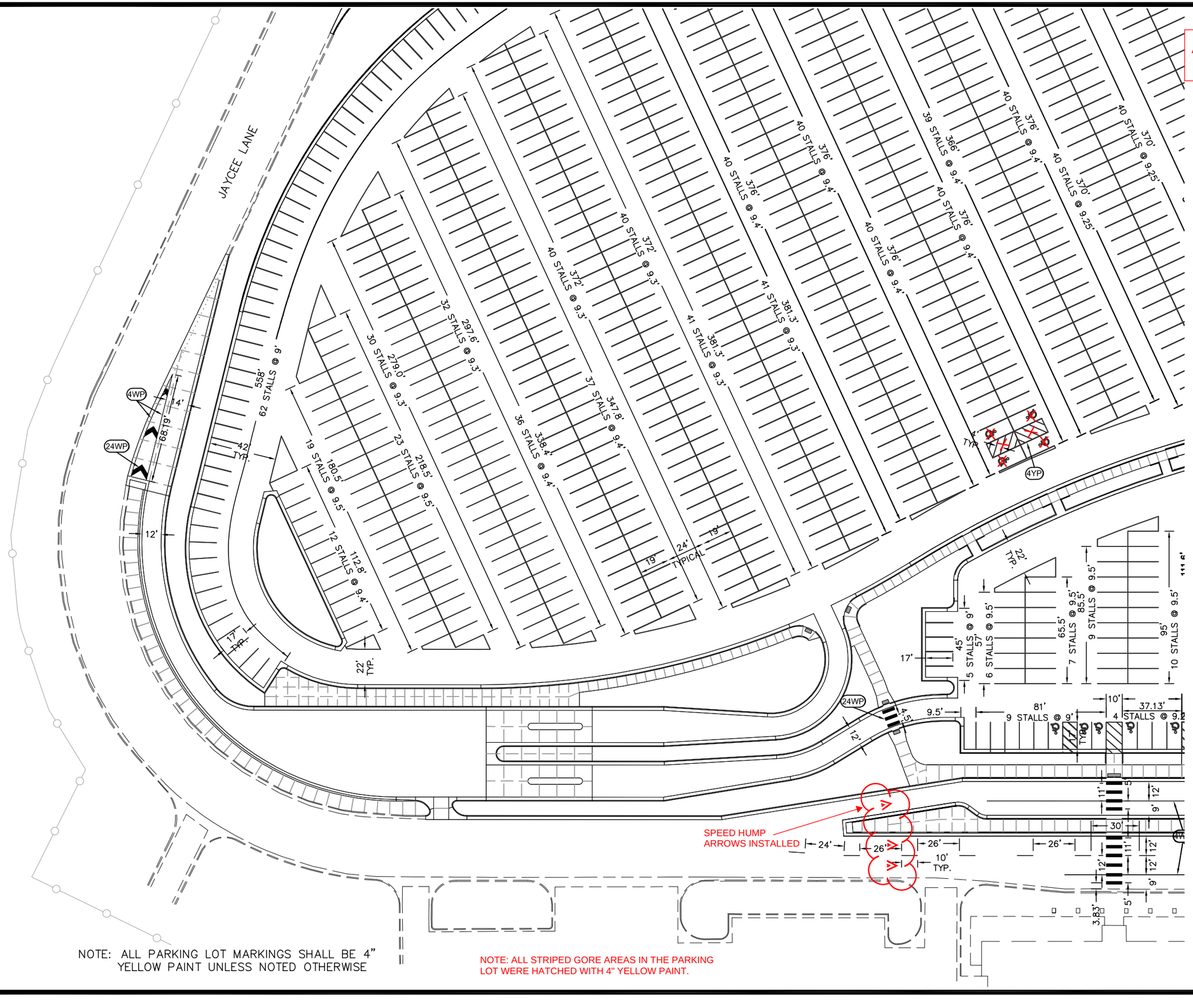
SHEET NO.
K2
OF
K2

AS-BUILT DRAWINGS
JANUARY 2013

SCALE: 1"=60'
0 30 60 FT



NOTE: ALL PARKING LOT MARKINGS SHALL BE 4" YELLOW PAINT UNLESS NOTED OTHERWISE

NOTE: ALL STRIPED GORE AREAS IN THE PARKING LOT WERE HATCHED WITH 4" YELLOW PAINT.

PAVEMENT MARKING ESTIMATE OF QUANTITIES

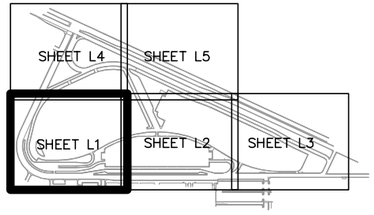
KEY	ITEM	UNIT	QUANT.
4YP	PAVEMENT MARKING PAINT 4" YELLOW	L. FT	44,087
4WP	PAVEMENT MARKING PAINT 4" WHITE	L. FT	2,150
24WP	PAVEMENT MARKING PAINT 24" WHITE	L. FT	625
24W	COLD PLASTIC PAVEMENT MARKING 24" WHITE - CONCRETE	L. FT	101
♿	PAVEMENT MARKING PAINT HANDICAP	EACH	29
	PAVEMENT MARKING PAINT ARROW	EACH	6

PARKING SUMMARY

TOTAL STALLS REQUIRED = N/A (AP ZONING)
TOTAL STALLS PROVIDED = 1702
ACCESSIBLE STALLS REQUIRED = 28
ACCESSIBLE STALLS PROVIDED = 29
VAN ACCESSIBLE STALLS REQUIRED = 2 (AIRPORT) = 1 (EXIT PLAZA)
VAN ACCESSIBLE STALLS PROVIDED = 10 (AIRPORT) = 1 (EXIT PLAZA)

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PAVEMENT MARKINGS

DESIGNED BY: STZ
DRAWN BY: DMS ACAD FILE: 210710_Pavement Markings.dwg
CHECKED BY: MDW DATE: 3/11/2021 DATE:
REVISIONS: BY: DATE:
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SHEET NO.
L1
OF
L5

SCALE: 1"=60'
0 30 60 FT

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PAVEMENT MARKINGS

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AS-BUILT DRAWINGS
JANUARY 2013

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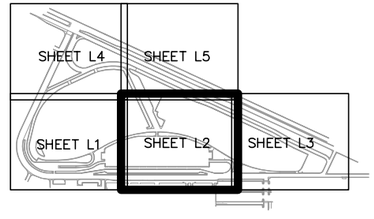
SOUTH DAKOTA

KEY MAP



SPEED HUMP ARROWS INSTALLED

"TAXI ONLY" PAINTED IN 3 ADDED STALLS

NOTE: ALL STRIPED GORE AREAS IN THE PARKING LOT WERE HATCHED WITH 4" YELLOW PAINT.

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SIOUX FALLS REGIONAL AIRPORT

SHEET NO.
L2
OF
L5

MINNESOTA AVENUE (NB)

MINNESOTA AVENUE (SB)

RECIRCULATION ROAD

945'
105 STALLS @ 9'

64'
TYP.

159.8'
17 STALLS @ 9.4'

167.4'
18 STALLS @ 9.3'

167.4'
18 STALLS @ 9.3'

172.9'
19 STALLS @ 9.1'

172.9'
19 STALLS @ 9.1'

19'
26'
TYPICAL
19'

165.6'
18 STALLS @ 9.2'

165.6'
18 STALLS @ 9.2'

147.2'
16 STALLS @ 9.2'

147.2'
16 STALLS @ 9.2'

127.4'
14 STALLS @ 9.1'

118.3'
13 STALLS @ 9.1'

99'
11 STALLS @ 9'

90'
10 STALLS @ 9'

66.5'
7 STALLS @ 9.5'

47.5'
5 STALLS @ 9.5'

17'
TYP.

42'
TYP.

12'

23'

22'
TYP.

22'
TYP.

JAYCEE LANE

NOTE: ALL STRIPED GORE AREAS IN THE PARKING LOT WERE HATCHED WITH 4" YELLOW PAINT.

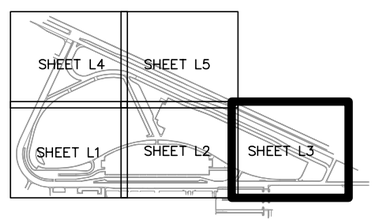
SCALE: 1"=60'

0 30 60 FT

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PAVEMENT MARKINGS

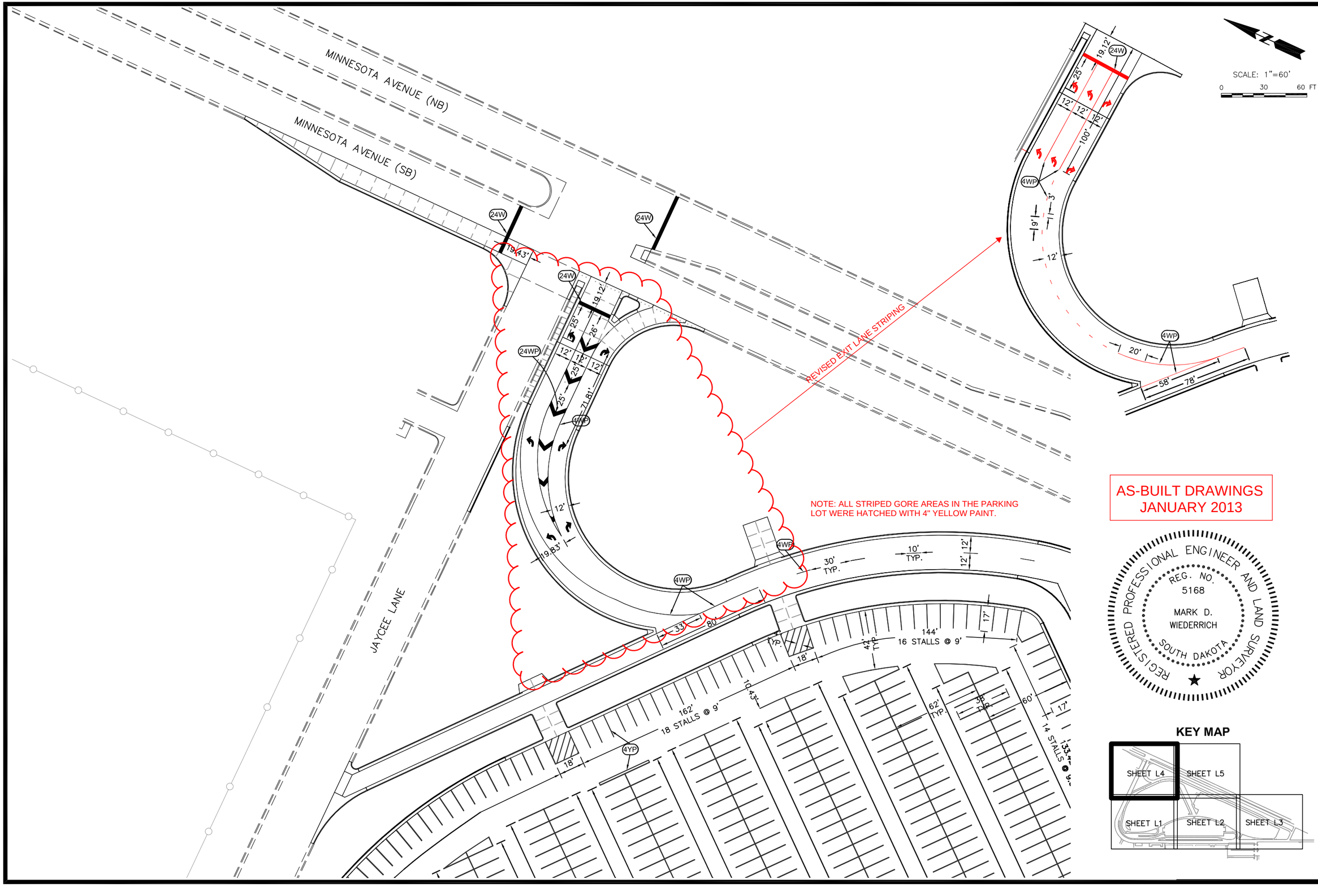
DESIGNED BY: STZ
DRAWN BY: DMS
CHECKED BY: MKW
REVISIONS:

ACAD FILE: 210710_Pavement Markings.dwg
DATE: 3/11/2021
BY: DATE:
BY: DATE:

SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
L3
OF
L5



AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PAVEMENT MARKINGS

DESIGNED BY: STZ
DRAWN BY: DMS — ACAD FILE: 210710_Pavement Markings.dwg
CHECKED BY: MDW — DATE: 3/11/2021
REVISIONS: — BY: — DATE:
BY: — DATE:

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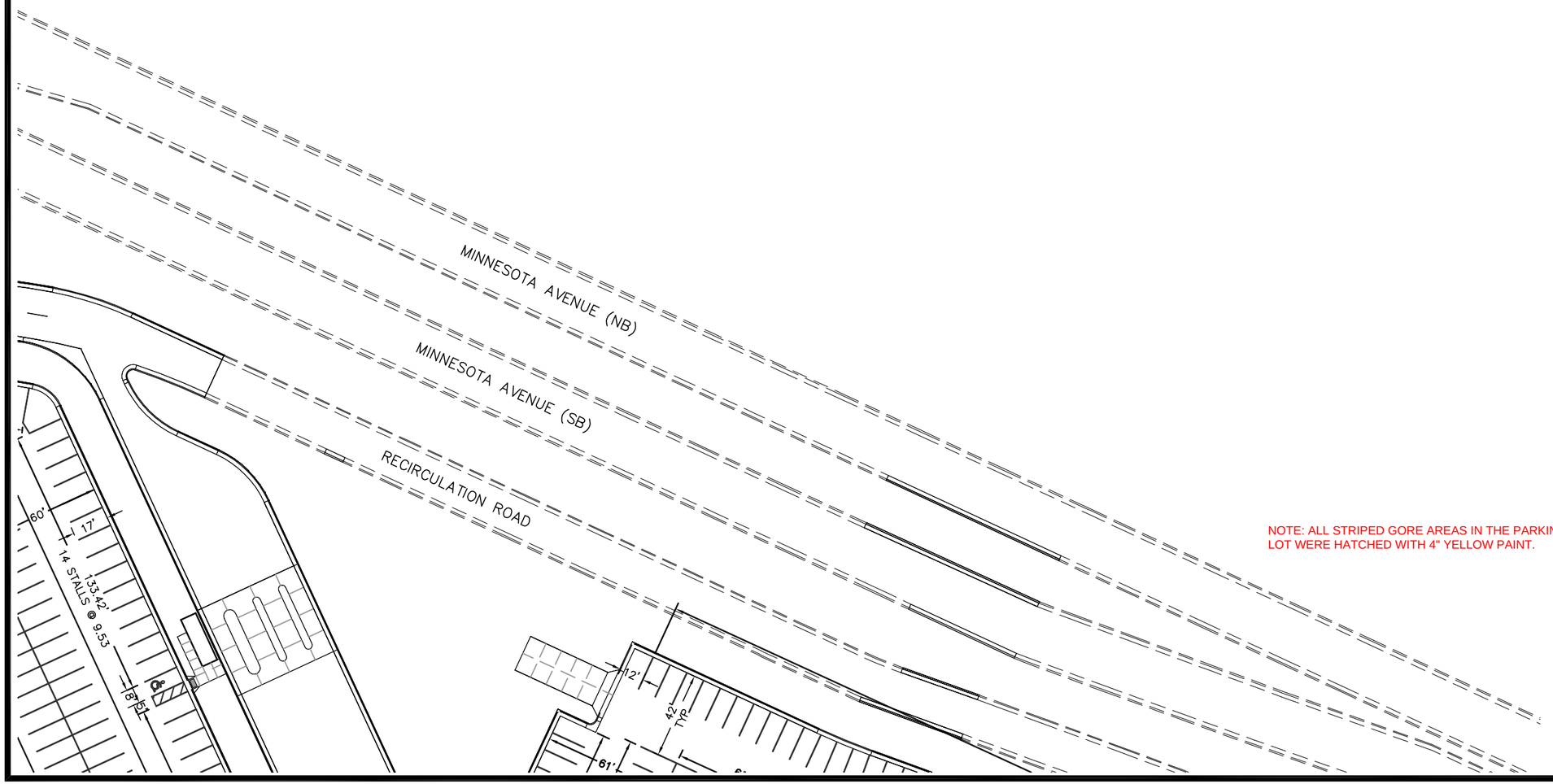
SHEET NO.
L4
OF
L5



SCALE: 1"=60'

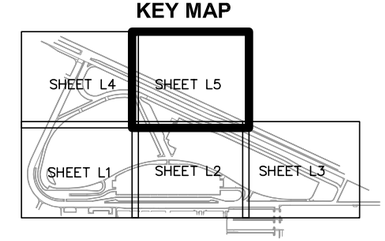
0 30 60 FT

NOTE: ALL STRIPED GORE AREAS IN THE PARKING LOT WERE HATCHED WITH 4" YELLOW PAINT.

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PAVEMENT MARKINGS

DESIGNED BY: STZ
DRAWN BY: DMS
CHECKED BY: MDW
REVISIONS:

ACAD FILE: 21070_Pavement Markings.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

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SHEET NO.
L5
OF
L5

PERMANENT SIGN NOTES

SPECIFICATIONS TO BE USED

The City of Sioux Falls current edition of "General Conditions for Public Improvements and Supplemental Standard Specifications", the South Dakota Department of Transportation (SDDOT) "Standard Specifications for Roads and Bridges" Current Edition, and the "Manual on Uniform Traffic Control Devices" (MUTCD) are all hereby made a part of these specifications in their entirety unless otherwise revised, deleted, or supplemented herein.

The City of Sioux Falls Engineer's Office will provide a copy of the standard specifications free of charge to all prospective bidders upon request. The standard specifications can also be downloaded from the City of Sioux Falls web site at address http://www.siouxfalls.org/publicworks/bidtabsdocs.asp.

ORDER OF PRECEDENCE

If conflicts arise, the order of precedence of the contract documents shall be as follows: Plans, Special Provisions over City of Sioux Falls Supplemental Standard Specifications over Sioux Falls General Conditions and Standard Specifications over South Dakota Department of Transportation Standard Specifications.

SEQUENCING

See Sheet F-1 for Sequence of Operations.

SCOPE OF WORK

This work consists of the installation of Contractor furnished and installed signs and the removal and reset of any existing signs.

The Permanent Sign Table addresses which signs are to be new and which signs are to be removed and reset.

All signs are to be installed in accordance with Sections 632 and 982 of the SDDOT Standard Specifications.

REMOVE TRAFFIC SIGN

The Contractor shall be responsible to remove the existing traffic signs as specified in the plans. The signs, posts, bases and all hardware shall be removed and disposed of by the contractor. Multiple signs removed from the same post will be measured individually and paid for on a per each basis. All costs required including labor, equipment and materials to remove sign with post, anchor post, stiffener sleeve, and concrete footings (if present) and disposal of said items are considered incidental to the contract unit price per each for “Remove Traffic Sign”.

SALVAGE TRAFFIC SIGN FOR RESET

This bid item includes all costs necessary to salvage the existing traffic signs for reset and to remove and dispose of the existing post, anchor post and stiffener sleeve at the locations specified in the plans. All signs must be removed from the post prior to the removal of the post and base and the Contractor is to take extreme care in handling and storing the signs to prevent damage to the reflective sheeting of signs. Signs that are damaged (i.e. scratched and/or bent) will be replaced by the Contractor at no expense to the Airport Authority.

Multiple signs removed from the same post will be measured individually and paid for on a per each basis. All costs required including labor, equipment and materials to salvage and store the sign until reset and to remove and dispose of the post, anchor post and stiffener sleeve are considered incidental to the contract unit price per each for "Salvage Traffic Sign for Reset".

INSTALL TRAFFIC SIGN ON POST

This bid item includes all costs necessary to mount new signs or signs previously removed and salvaged by the Contractor on perforated tube posts. Signs shall be mounted as per the Typical Sign Post Detail. The Contractor is to take extreme care in handling the signs to prevent damage. Signs that are damaged (i.e. scratched and/or bent) will be replaced by the Contractor at no expense to the Airport Authority. Multiple signs placed on the same post will be measured separately.

All costs required including labor, equipment and materials, including mounting hardware, to mount signs, are considered incidental to the contract unit price per each for “Install Traffic Sign on Post".

INSTALL TRAFFIC SIGN ON STREET LIGHT

This bid item includes all costs necessary to mount new signs or signs previously removed and salvaged by the Contractor on steel street light poles. The Contractor shall use stainless steel sign mounting brackets with stainless steel 3/4" clips and straps, as manufactured by "Band-It" or equivalent. The sign shall be secured to the pole using the appropriate number of bracket, clips and straps as recommended by the manufacturer. The Contractor is to take extreme care in handling the signs to prevent damage. Signs that are damaged (i.e. scratched and/or bent) will be replaced by the Contractor at no expense to the Airport Authority. Multiple signs placed on the same street light will be measured separately.

All costs required including labor, equipment and materials to mount signs, are considered incidental to the contract unit price per each for "Install Traffic Sign on Street Light".

SIGNS

The signs listed on the Permanent Sign Table in the plans shall be furnished by the Contractor for the locations specified. All signs shall be flat sheet aluminum Type III, also known as High Intensity Prismatic (HIP).

The costs of the signs shall be incidental to the contract unit price per square foot for Flat Aluminum Sign, Non-removable Copy Type III. See Permanent Sign Table.

PLACEMENT

For signs erected in business, commercial, and residential districts, the clearance to the bottom of the sign shall be 7'-7.5'. The height to the bottom of a secondary sign mounted below another sign may be 1' less than the appropriate height specified above.

Generally, all signs shall be placed as noted in the Permanent Signing Tables located on sheet K-3. Typically, the sign shall be 2'-2.5' behind the face of the curb in areas where the sidewalk is not adjacent to the curb.

All signs shall be installed facing traffic at a 90 degree angle to the direction of travel.

TUBE POSTS

The Contractor shall provide perforated square (breakaway) sign supports for each sign as listed in the Permanent Sign Table in these plans.

Signposts shall be of length adequate to provide the proper height above the roadway and to extend to the top of the sign. The signpost shall not extend past the top of the sign. The Contractor shall verify the required posts' lengths prior to obtaining these materials.

The 42” anchor post shall be installed so that 1-2” is above the ground line. The sign post shall be attached to the anchor post with 2-5/16” stainless steel bolts installed 90 degrees to each other. Refer to the standard detail signpost detail.

Sleeves or boxouts for the sign anchors in the concrete median pavement shall be considered incidental to the contract unit price for the Perforated Tube Posts.

The plan post lengths shall be field verified by the Contractor prior to Installation. The 2.0" x 2.0" perforated square sign supports will be measured to the nearest 0.10' and paid for at the contract unit price per foot for 2.0" x 2.0" Perforated Tube Post. The 2.25" x 2.25" x 42" perforated square anchor post will be measured to the nearest 0.10' and paid for at the contract unit price per foot for 2.25" x 2.25" Perforated Tube Post. The 2.5" x 2.5" x 18" perforated square (post) stiffener sleeve will be measured to the nearest 0.10' and paid for at the contract unit price per foot for 2.5" x 2.5" Perforated Tube Post.

HARDWARE

The Contractor shall use 3/8" rust proof machine sign bolts, flat metal washers, nylon washers (against the sign sheeting), lock washers and nuts to fasten the sign to the Perforated Tube Post. A minimum of two bolts shall extend through the post.

The cost for all hardware items shall be incidental to the contract unit price per foot for 2.0" x 2.0" Perforated Tube Post.

SIGN LEGEND. BORDER AND BACKGROUND

All sign materials shall comply with Section 982 of the SDDOT Standard Specifications.

All sign legend, border and background sheeting shall be hi-intensity encapsulated lens reflectorized Type III or Diamond Grade VIP Series Type IX See Permanent Sign Table for breakdown.

All upper case letters, lower case letters and all numerals shall be Series "E" Modified unless otherwise shown in the plans.

The border on all signs 3' or less in height shall be 1" wide. The border on all signs 4' or more in height shall be 2" wide.

The corner radii on all signs 3' or less in height shall be 3". The corner radii on all signs greater than 3' and less than 6' in height shall be 6". The corner radii on all signs 6' or more in height shall be 12". The sign height, sign width, letter height and symbol sizes are specified herein.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN PLAN

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
ACAD FILE: 210710_Sign Plan.dwg
DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
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TABLE OF PERMANENT SIGNS

MUTCD NUMBER	SIGN SIZE WxH	DESCRIPTION	FLAT ALUMINUM SIGN AREA	NUMBER OF SIGNS	TOTAL AREA	SALVAGE TRAFFIC SIGN FOR RESET	INSTALL TRAFFIC SIGN ON POST	INSTALL TRAFFIC SIGN ON STREET LIGHT	TUBE POST 2"x2"	TUBE POST 2.25"x2.25"	TUBE POST 2.5"x2.5"
			SQFT/ SIGN	EACH	SQFT	EACH	EACH	EACH	L.FT	L.FT	L.FT
M1-1	EXISTING	INTERSTATE 29, INTERSTATE 90				2	2		21.00	7	3
M4-5	EXISTING	TO				1	1				
M6-1	EXISTING	DIRECTIONAL ARROW (L)				1	1				
R1-1	EXISTING	STOP				3	3		9.67	3.5	1.5
R1-2	18"x18"x18"	YIELD	1.0	1	1		1		8.50	3.5	1.5
R1-2	36"x36"x36"	YIELD	3.90	2	7.8		2		19.17	7	3
R2-1	EXISTING	SPEED LIMIT 15				1		1			
R3-5R	30"X36"	Right Turn (Symbol) Only	7.5	2	15		2		20.33	7	
R3-5L	30"X36"	Left Turn (Symbol) Only	7.5	2	15		2		20.33	7	
R4-7R	24"x30"	KEEP RIGHT (SYMBOL)	5	1	5	1	2		9.67	3.5	6
R5-1	EXISTING	DO NOT ENTER				2	2		9.67	3.5	1.5
R6-1L	36"x12"	ONE WAY (LEFT ARROW)	3	1	3	3	3	1	24.50	10.5	4.5
R6-1R	EXISTING	ONE WAY (RIGHT ARROW)				1	1		8.17	3.5	1.5
R6-3a	30"x24"	DIVIDED HIGHWAY	5	2	10		2		10.75	7	3
R8-3	24"x24"	NO PARKING (SYMBOL)	4	7	28			7			
W11-2	18"x18"	PEDESTRIAN TRAFFIC	2.25	2	4.5		2		18.50	7	3
W11-2	24"x24"	PEDESTRIAN TRAFFIC	4	9	36		5	4 COLUMN MOUNT	49.58	17.5	7.5
SPECIAL	EXISTING	Minnesota Av				2		2			
SPECIAL	EXISTING	Jaycee Ln				2		2			
SPECIAL	EXISTING	SHORT TERM PARKING RATES				2	2	2 POLE MOUNT			
SPECIAL	EXISTING	LONG TERM PARKING RATES				2	2	2 POLE MOUNT			
SPECIAL	12"X18"	RESERVED PARKING	1.5	29	43.5		29		224.00	101.5	43.5
SPECIAL	12"x9"	STATE PERMIT OR LICENSE REQUIRED	0.75	29	21.8		29				
SPECIAL	12"x6"	VAN ACCESSIBLE	0.5	13	6.5		13				
SPECIAL	12"X18"	WHEELCHAIR ACCESS AISLE	1.5	7	10.5		7		47.25	24.5	10.5
SPECIAL	30"x24"	CELL PHONE LOT - FREE	5	1	5		1		9.17	3.5	1.5
SPECIAL	18"x24"	NO PARKING - INCREASED SECURITY	3	3	9		3		27.50	10.5	4.5
SPECIAL	24"x24"	SHUTTLE BUS/VAN - LEFT ARROW	4	2	8		2		18.50	7	3
SPECIAL	24"x24"	SHUTTLE BUS/VAN - RIGHT ARROW	4	1	4		1				
SPECIAL	24"x24"	TAXI SERVICE - LEFT ARROW	4	1	4		1		18.50	7	3
SPECIAL	24"x24"	TAXI SERVICE - RIGHT ARROW	4	2	8		2				
SPECIAL	42"x24"	TERMINAL/EXIT (Special #1)	7	1	7		1		18.33	7	3
SPECIAL	54"x24"	EXIT AIRPORT - Right Arrow (Special #2)	9	1	9		1		18.33	7	3
SPECIAL	54"x36"	RETURN TO TERMINAL - Left Arrow (Special #3)	13.5	1	13.5		1		20.33	7	3
				Totals:	**275.1**	**23**	**126**	**21**	**632**	**263**	**111**

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

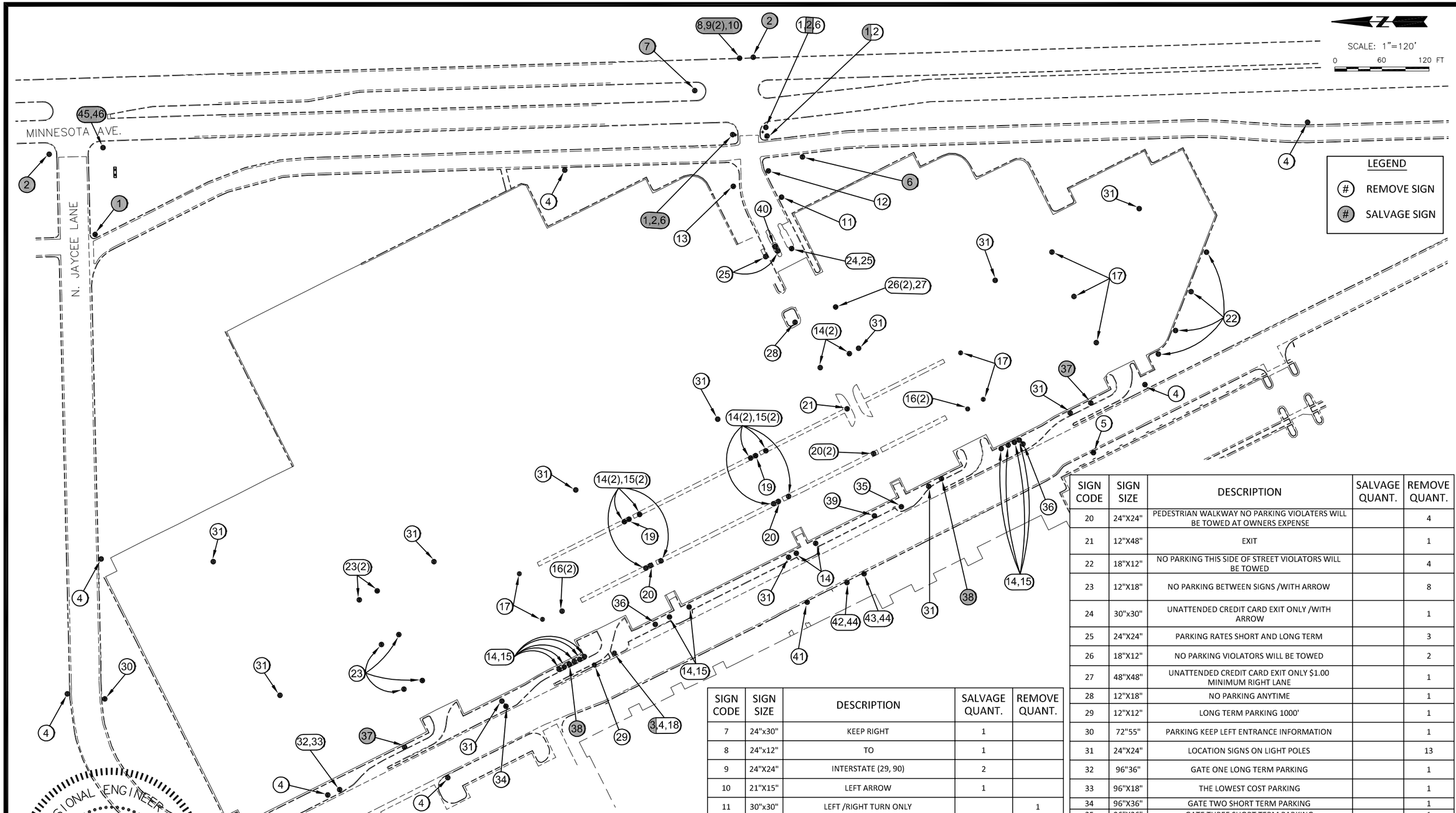
TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN PLAN

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
ACAD FILE: 210710_Sign Plan.dwg
DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685



SIGN CODE	SIGN SIZE	DESCRIPTION	SALVAGE QUANT.	REMOVE QUANT.
1	30"x30"	STOP	3	1
2	36"X12"	ONE WAY	3-L 1-R	1-R
3	24"x30"	SPEED LIMIT	1	
4	12"X18"	NO STOPPING OR STANDING		8
5	24"x24"	NO U-TURN		1
6	36"x36"	DO NOT ENTER	2	1

SIGN CODE	SIGN SIZE	DESCRIPTION	SALVAGE QUANT.	REMOVE QUANT.
7	24"x30"	KEEP RIGHT	1	
8	24"x12"	TO	1	
9	24"X24"	INTERSTATE (29, 90)	2	
10	21"X15"	LEFT ARROW	1	
11	30"x30"	LEFT /RIGHT TURN ONLY		1
12	36"X36"	CENTRAL BUSINESS DISTRICT /WITH ARROW		1
13	60"X48"	EXIT TO CITY -TERMINAL /WITH ARROW		1
14	12"X18"	RESERVED HANDICAP PARKING		33
15	12"X8"	STATE PERMIT OR LICENSE REQUIRED		27
16	24"X24"	DRIVEWAY NO PARKING		4
17	12"X18"	NO PARKING IN DRIVEWAY /WITH ARROW		7
18	12"X12"	HANDICAP		1
19	12"X18"	PEDESTRAIN WALKWAY NO PARKING		2

SIGN CODE	SIGN SIZE	DESCRIPTION	SALVAGE QUANT.	REMOVE QUANT.
20	24"X24"	PEDESTRIAN WALKWAY NO PARKING VIOLATERS WILL BE TOWED AT OWNERS EXPENSE		4
21	12"X48"	EXIT		1
22	18"X12"	NO PARKING THIS SIDE OF STREET VIOLATORS WILL BE TOWED		4
23	12"X18"	NO PARKING BETWEEN SIGNS /WITH ARROW		8
24	30"x30"	UNATTENDED CREDIT CARD EXIT ONLY /WITH ARROW		1
25	24"X24"	PARKING RATES SHORT AND LONG TERM		3
26	18"X12"	NO PARKING VIOLATORS WILL BE TOWED		2
27	48"X48"	UNATTENDED CREDIT CARD EXIT ONLY $1.00 MINIMUM RIGHT LANE		1
28	12"X18"	NO PARKING ANYTIME		1
29	12"X12"	LONG TERM PARKING 1000'		1
30	72"55"	PARKING KEEP LEFT ENTRANCE INFORMATION		1
31	24"X24"	LOCATION SIGNS ON LIGHT POLES		13
32	96"36"	GATE ONE LONG TERM PARKING		1
33	96"X18"	THE LOWEST COST PARKING		1
34	96"X36"	GATE TWO SHORT TERM PARKING		1
35	96"X36"	GATE THREE SHORT TERM PARKING		1
36	96"X36"	GATE FOUR LONG TERM PARKING		1
37	30"X24"	LONG TERM RATE	2	
38	30"X24"	SHORT TERM RATE	2	
39	12"X18"	BAGGAGE LOAD AREA		1
40	36"X48"	EXIT		1
41	30"X24"	YIELD TO PEDESTRIAN		1
42	18"X24"	BROOKINGS VAN ONLY		1
43	12"X18"	NO PARKING IN CROSSWALK		1
44	12"X6"	TOW-AWAY ZONE		2
45	9"X36"	Minnesota Ave.	2	
46	9"X36"	Jaycee Ln.	2	
		TOTAL=	23	141

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN REMOVALS

DESIGNED BY: XXX
DRAWN BY: DMS
CHECKED BY: XXX
REVISIONS:

ACAD FILE: 210710_Sign_Demo.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
M3
OF
M9

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SCALE: 1"=120'
0 60 120 FT

R4-7 24"x30" 1 (RESET) 1 (NEW)
M1-1 (RESET)
TO M4-5 (RESET)
INTERSTATE 29 INTERSTATE 90 M1-1 (RESET)
M6-1 (RESET)
R1-1 (RESET) STOP
R6-1L (RESET) ONE WAY
STREET NAME SIGNS INSTALLED ON SIGNAL MAST ARMS BY CITY
Minnesota AV #### Jacyee LN ####
STREET NAME SIGNS (RESET) POLE MOUNTED
R6-3a (NEW) 30"x24" DIVIDED HIGHWAY
NO UNATTENDED VEHICLES
SPECIAL SIGN (NEW) 30"x24" WITH 6"/3" LETTERS BLACK ON WHITE
R6-1L (RESET) POLE MOUNTED ONE WAY
CELL PHONE LOT
R6-1R (RESET) ONE WAY
SPECIAL SIGN (NEW) 30"x24" WITH 3" LETTERS WHITE ON GREEN
PASSENGER PICK UP WAITING LOT
SPECIAL SIGN (NEW) 36"x30" WITH 4" LETTERS WHITE ON GREEN
R3-5L (NEW) 30"x36" ONLY
R3-5R (NEW) 30"x36" ONLY
R1-2 (NEW) 36"x36"x36" YIELD
R6-1L (NEW) 36"x12" ONE WAY
R5-1 (RESET) DO NOT ENTER
JAYCEE LANE
R1-1 RESET STOP
R6-1L (RESET) ONE WAY
R8-3 (NEW) 24"x24" POLE MOUNTED
R1-2 (NEW) 36"x36"x36" YIELD
MINNESOTA AVENUE (NB)
MINNESOTA AVENUE (SB)
RECIRCULATION ROAD
R1-2 (NEW) 18"x18"x18" YIELD
R8-3 24"x24" (NEW) POLE MOUNTED
SPECIAL ASSEMBLY #1 (SEE DESIGN NOTES)
SHORT-TERM RATE
LONG TERM RATE
SPECIAL PARKING RATE SIGNS (RESET)
W11-2 (NEW) 18"x18"
SPECIAL SIGN (NEW) 18"x24" WITH 1" LETTERS (LAYOUT TO MATCH EXISTING SIGNS)
DUE TO INCREASED AIRPORT SECURITY NO UNATTENDED VEHICLES ALLOWED SUBJECT TO IMMEDIATE TOWING
SPECIAL SIGNS (NEW) 24"x24" WITH 4" LETTERS WHITE ON BLUE
SHUTTLE BUS/VAN
SHUTTLE BUS/VAN
TAXI SERVICE
TAXI SERVICE
R1-2 YIELD
W11-2 (NEW) 18"x18"
SPECIAL PARKING RATE SIGNS (RESET)
R8-3 (NEW) 24"x24" POLE MOUNTED
SPECIAL ASSEMBLY #3 (SEE DESIGN NOTES)
SPECIAL ASSEMBLY #2 (SEE DESIGN NOTES)
SPEED LIMIT 15
R2-1 (RESET) R8-3 24"x24" (NEW) POLE MOUNTED
R6-1L ONE WAY
R8-3 (NEW) 24"x24" POLE MOUNTED
MOUNT SIGN ON COLUMN
W11-2 (NEW) 18"x18" ~~24"x24"~~
MOUNT SIGN ON COLUMN
MOUNT SIGN ON COLUMN
W11-2 (NEW) ~~24"x24"~~ 18"x18"
MOUNT SIGN ON COLUMN
R8-3 (NEW) 24"x24" POLE MOUNTED

1
TERMINAL EXIT
4" LETTERS
WHITE ON GREEN
42"x24"

2
EXIT AIRPORT
6" LETTERS
WHITE ON GREEN
54"x24"

3
RETURN TO TERMINAL
6" LETTERS
WHITE ON GREEN
54"x36"

AS-BUILT DRAWINGS
JANUARY 2013

NOTE: 18 LETTER SIGNS WERE INSTALLED ON LIGHT POLES THROUGHOUT THE PARKING LOT. THE SIGNS ARE BLUE WITH WHITE LETTERING. EACH SIGN CONSISTS OF THREE SEPARATE PANELS. LOCATIONS ON THIS SHEET ARE INDICATED BY EACH SIGN'S RESPECTIVE LETTER.

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
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SIGN PLAN

DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Sign Plan.dwg
DATE: 3/11/2011
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SHEET NO.
M4
OF
M9

SCALE: 1"=60'
0 30 60 FT

RESERVED PARKING
STATE PERMIT OR LICENSE REQUIRED $100 MINIMUM FINE AND CLASS 2 MISDEMEANOR FOR VIOLATORS
VAN ACCESSIBLE
WHEELCHAIR ACCESS AISLE
ABSOLUTELY NO PARKING

INSTALL SIGNS DOUBLE SIDED

MINN
RECIRC

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN PLAN

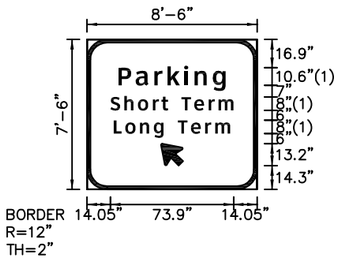
ACAD FILE: 210710_Sign Plan.dwg
DATE: 3/11/2011
DESIGNED BY: EJL
DRAWN BY: EJL
CHECKED BY: MDW
REVISIONS:
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9665

SHEET NO.
M5
OF
M9

SIGN DETAIL



Dimensions are in inches.tenths

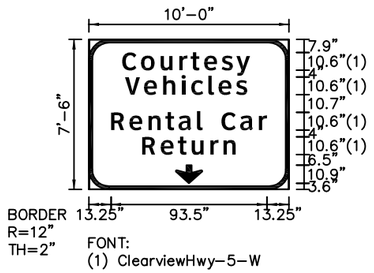
FONT:
(1) ClearviewHwy–5–W

SIGN NUMBER	Sign 1
WIDTH x HGHT.	8'–6" x 7'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: 9 Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: 9 Reflective
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
ARSHRT	135	44.4	14.3	14.7	16.6

LETTER POSITIONS (X)																				LENGTH	SERIES/SIZE
P	a	r	k	i	n	g															ClearviewHwy–5–W
18.8	29.2	40.4	48.3	58.3	64.5	75.5														64.3	10.6/8.6
S	h	o	r	t		T	e	r	m												ClearviewHwy–5–W
14	22.4	30.6	39.5	44.6	48.6	56.6	64.4	73	78.9											73.9	8/6.5
L	o	n	g		T	e	r	m													ClearviewHwy–5–W
16.1	22.9	31.8	40.1	45.9	54.5	62.3	70.9	76.9												69.8	8/6.5

SIGN DETAIL



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

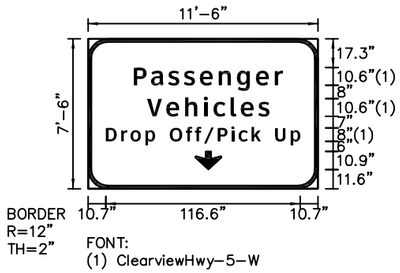
FONT:
(1) ClearviewHwy–5–W

SIGN NUMBER	Sign 2
WIDTH x HGHT.	10'–0" x 7'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: 9 Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: 9 Reflective
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
ARDOWN	0	52.1	3.6	15.9	10.9

LETTER POSITIONS (X)																				LENGTH	SERIES/SIZE
C	o	u	r	t	e	s	y														ClearviewHwy–5–W
19.9	31.3	43	54.2	61.1	69	79.6	88.4													76.8	10.6/8.6
V	e	h	i	c	l	e	s														ClearviewHwy–5–W
21.6	33.1	44.5	55.6	61.4	71.6	77.7	88.3													73.4	10.6/8.6
R	e	n	t	a	l		C	a	r												ClearviewHwy–5–W
13.2	24.3	35.7	46	53.7	64.9	68.2	79.5	90.7	101.9											93.5	10.6/8.6
R	e	t	u	r	n																ClearviewHwy–5–W
31.9	43	53.3	61.6	72.8	80.8															56.2	10.6/8.6

SIGN DETAIL



Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

FONT:
(1) ClearviewHwy–5–W

SIGN NUMBER	Sign 3
WIDTH x HGHT.	11'–6" x 7'–6"
BORDER WIDTH	2"
CORNER RADIUS	12"
MOUNTING	Overhead
BACKGROUND	TYPE: 9 Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: 9 Reflective
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
ARDOWN	0	64.2	11.5	15.9	10.9

LETTER POSITIONS (X)																				LENGTH	SERIES/SIZE
P	a	s	s	e	n	g	e	r													ClearviewHwy–5–W
27.4	37.8	48.1	57.4	67.1	78.5	89.4	100.7	112.1												89.5	10.6/8.6
V	e	h	i	c	l	e	s														ClearviewHwy–5–W
35.5	47	58.3	69.5	75.3	85.5	91.6	102.1													73.4	10.6/8.6
D	r	o	p		O	f	f	/	P	i	c	k		U	p						ClearviewHwy–5–W
10.7	19.9	25.6	34.4	40.2	49.1	58.6	64.1	69.6	77.8	85.9	90.3	98	103.7	112.2	121.5					116.6	8/6.5

AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

SHEET NO.
M6
OF
M9

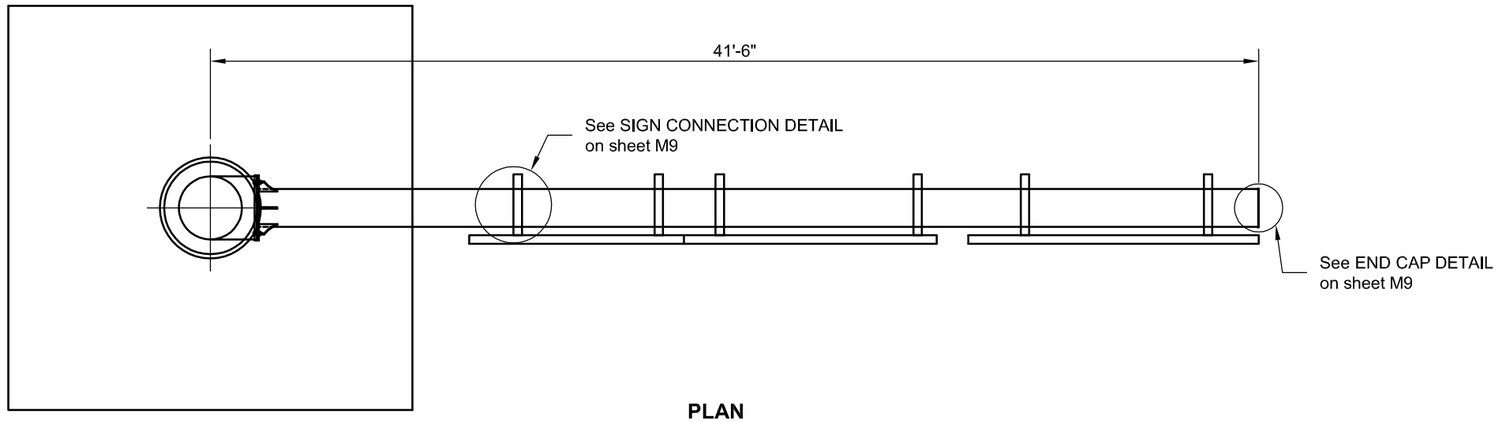
TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

11"X17" SECTION TITLE

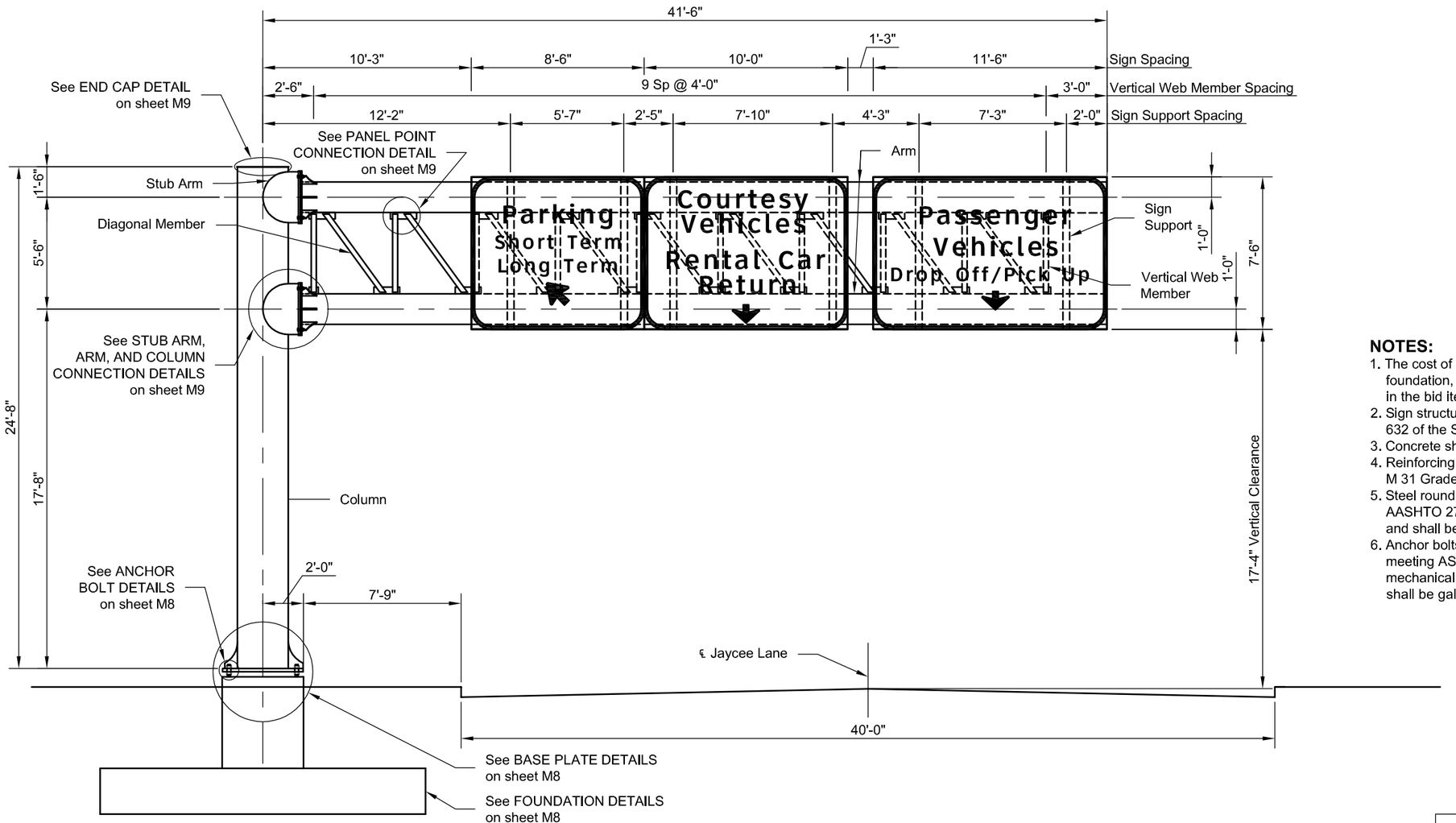
DESIGNED BY: XXX
DRAWN BY: XXX
CHECKED BY: XXX
REVISIONS:
ACAD FILE: XXX.dwg
DATE: X/XX/XXXX
BY: DATE:
BY: DATE:

SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9885



PLAN



ELEVATION
(Looking West)

NOTES:

1. The cost of all materials, labor and equipment required to construct the foundation, sign support structure, and signs shall be included in the bid item "Cantilevered Sign Structure."
2. Sign structure shall be constructed in accordance with Section 632 of the SDDOT Standard Specifications for Roads & Bridges.
3. Concrete shall have a 28-day compressive strength of 3,000 psi.
4. Reinforcing steel shall conform to the requirements of AASHTO M 31 Grade 60.
5. Steel round tubes and standard pipe members shall meet AASHTO 270 Grade 36, M161, or ASTM A53 (Grade B Steel) and shall be galvanized according to AASHTO M111.
6. Anchor bolts, nuts, and washers shall be fabricated of steel meeting ASTM A307 and meet AASHTO M314 Grade 55 mechanical requirements. All anchor bolts, nuts, and washers shall be galvanized steel meeting ASTM A153.

AS-BUILT DRAWINGS
JANUARY 2013

QUANTITIES	
CANTILEVERED SIGN STRUCTURE	1 L SUM

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

CANTILEVER OVERHEAD SIGN STRUCTURE

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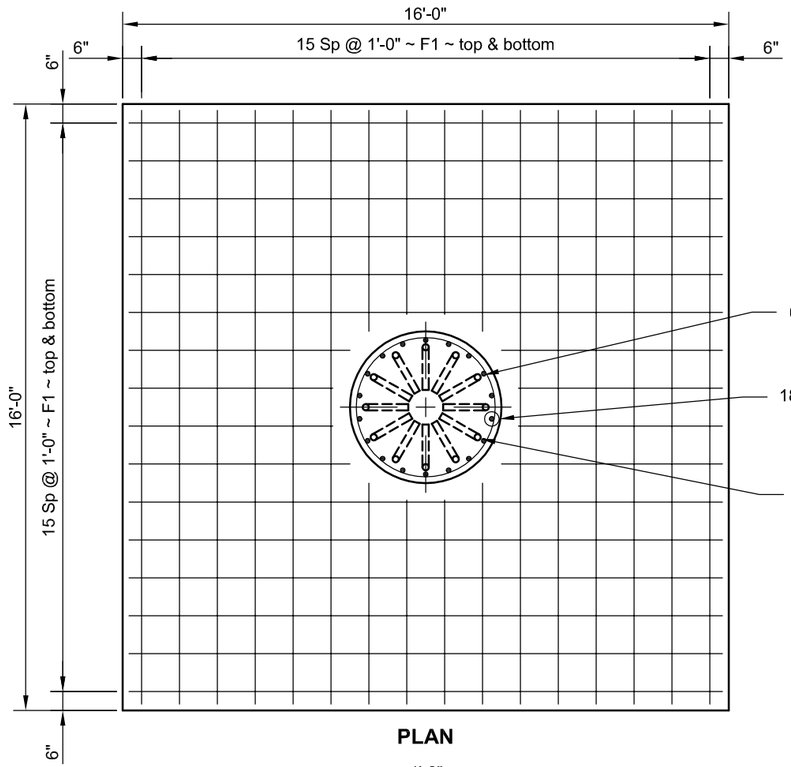
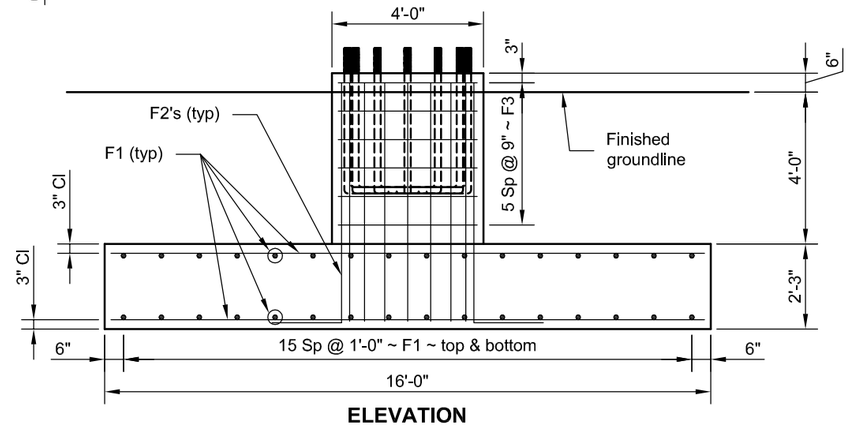
M7
OF
M9



PLAN

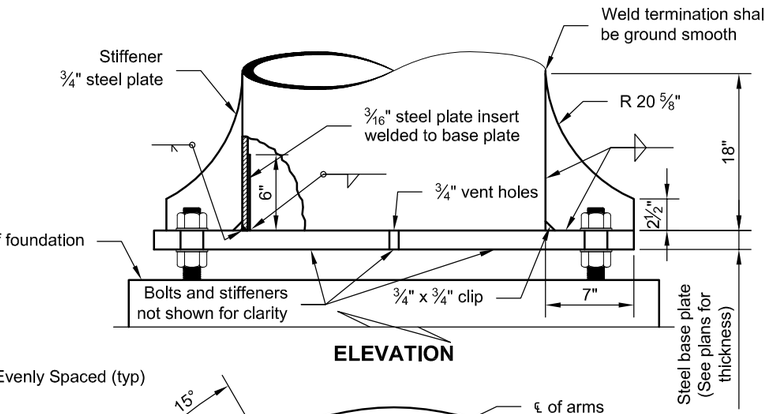


ELEVATION

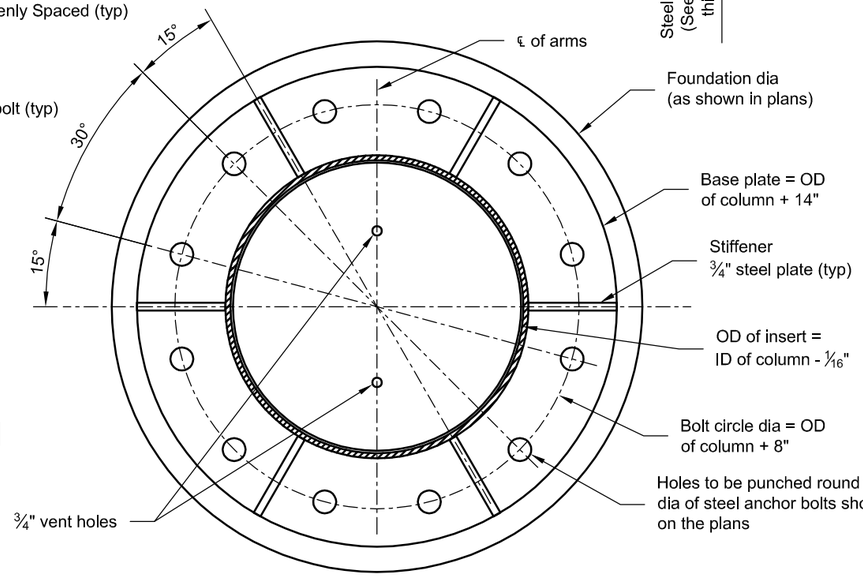
FOUNDATION DETAILS

		CANTILEVER SIGN STRUCTURE MEMBERS				
		COLUMN	STUB ARMS	CANTILEVER ARMS	VERTICAL WEB MEMBER	DIAGONAL MEMBERS
Steel	Standard Pipe	30" OD (118.80) wall thickness = ⅜"	30" OD (118.80) wall thickness = ⅜"	18" OD (70.70) wall thickness = ⅜"		
	XS Pipe				3" (10.25)	3" (10.25)
	Flat Bars					

Base plate thickness:	2"	Flange plate thickness:	1"
Anchor bolts:	12 ea @ 2" dia	Flange bolts:	12 ea/flange @ 1" dia
Anchor bolt length:	3'-10" plus 12½" bend	Camber:	3.38"

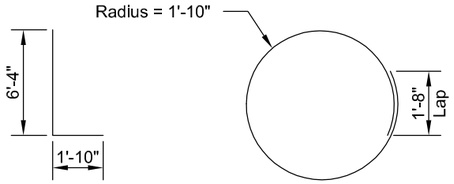


ELEVATION



PLAN

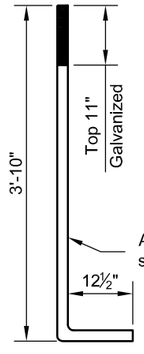
BASE PLATE DETAIL

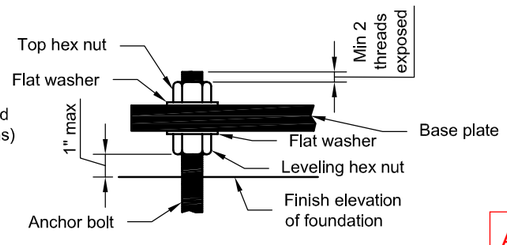


BAR BEND DETAILS

BILL OF REINFORCEMENT					
BAR	NO.	SIZE	LENGTH	SHAPE	LOCATION
F1	64	7	15'-8"	———	Top & Bottom of Footing
F2	18	10	8'-2"	⌐—⌐	Vertical in Column
F3	6	5	13'-3"	◯	Column Tie

ESTIMATED FOUNDATION MATERIAL QUANTITIES (FOR INFORMATIONAL PURPOSES ONLY)	
REINFORCING STEEL (LBS)	CONCRETE (CY)
2,765	23.4





ANCHOR BOLT DETAILS

AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

FOUNDATION DETAILS

FSD SIOUX FALLS REGIONAL AIRPORT

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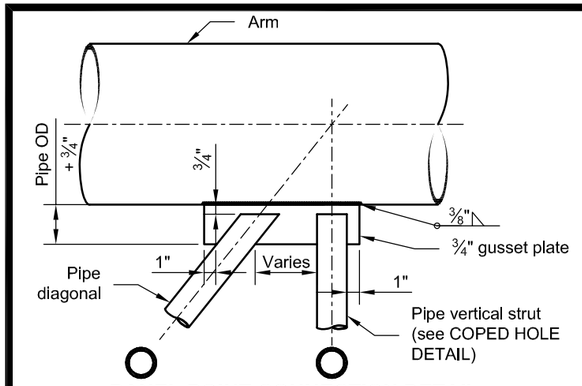
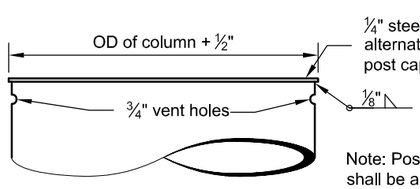
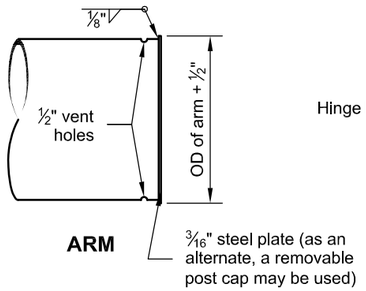
M8
OF
M9



PANEL POINT CONNECTION DETAIL

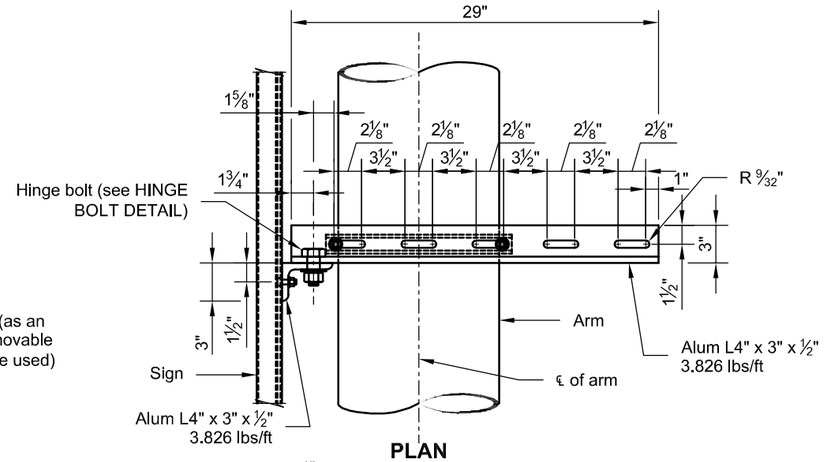


COLUMN

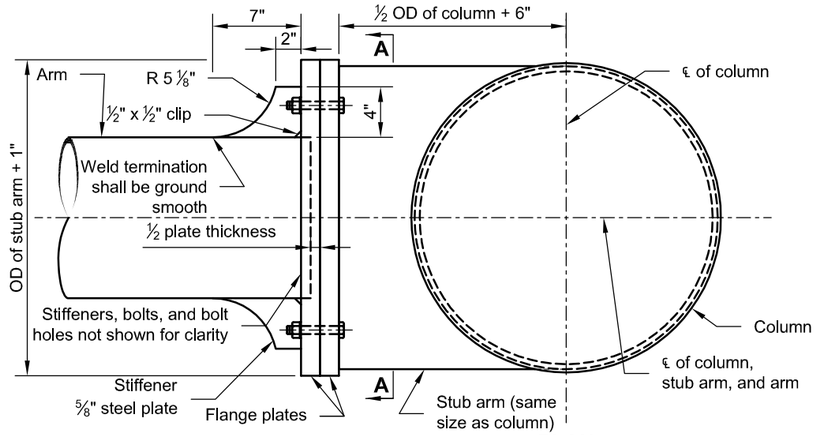


END CAP DETAIL

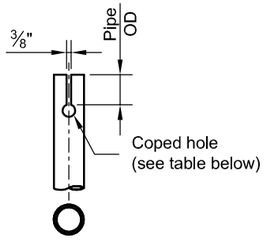
ARM



PLAN

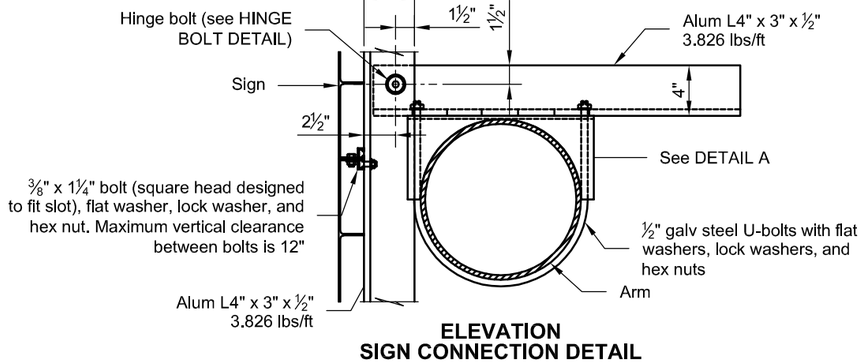


PLAN

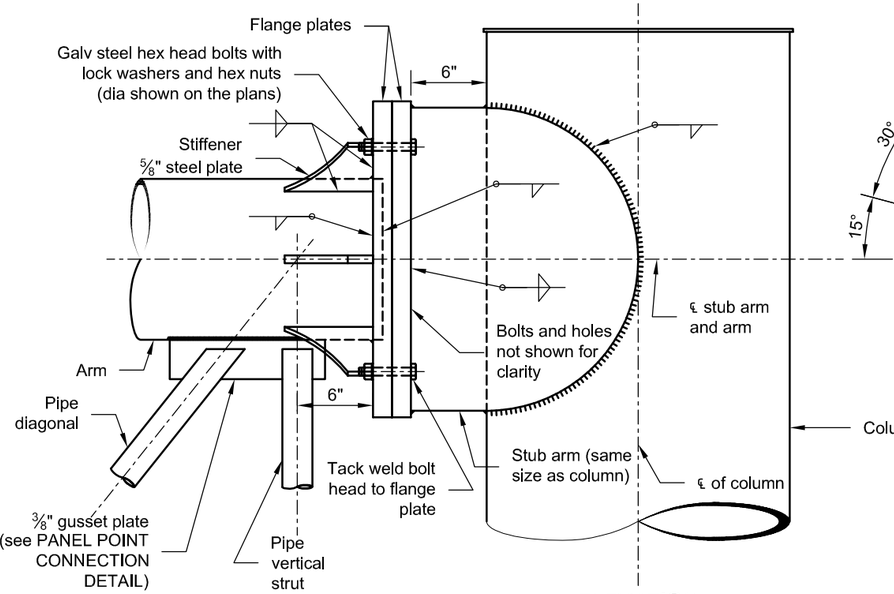


Pipe Outside Diameter	Coped Hole Diameter
OD <= 3"	Twice the wall thickness
OD >3"	1"

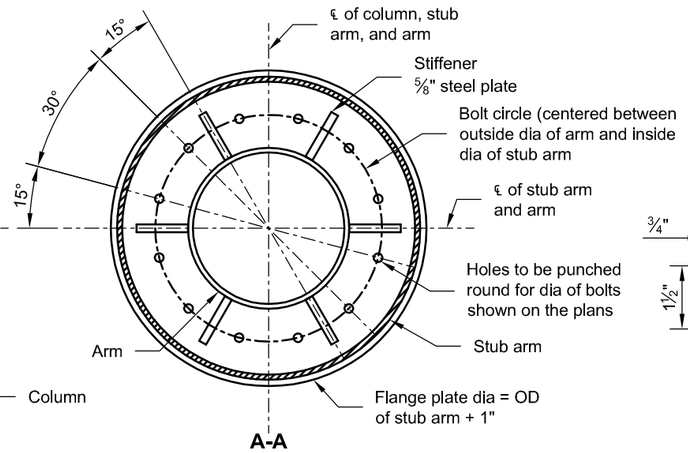
COPED HOLE DETAIL



ELEVATION
SIGN CONNECTION DETAIL

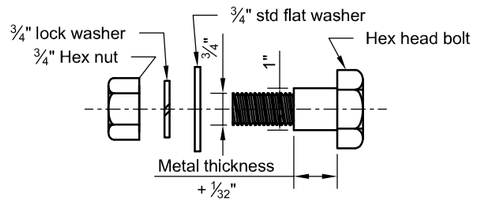


ELEVATION

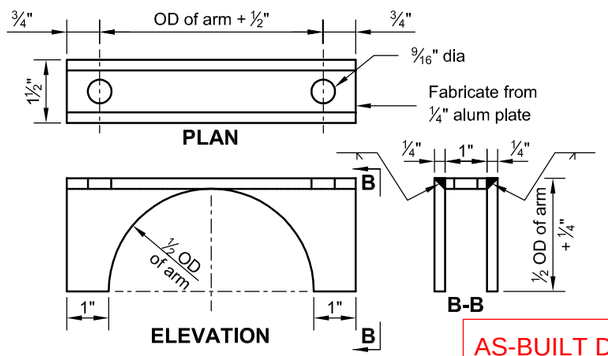


A-A

STUB ARM, ARM, AND COLUMN CONNECTION DETAILS



HINGE BOLT DETAIL



AS-BUILT DRAWINGS
JANUARY 2013

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN STRUCTURE GENERAL DETAILS

FSD SIOUX FALLS REGIONAL AIRPORT

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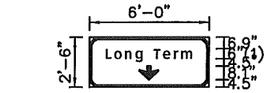
Kadrmas Lee & Jackson Engineers Surveyors Planners

M9 OF M9

SIGN DETAIL



FONT:
(1) ClearviewHwy-5-W

SIGN NUMBER	Sign 4
WIDTH x HGHT.	6'-0" x 2'-6"
BORDER WIDTH	1.25"
CORNER RADIUS	6"
MOUNTING	Overhead
BACKGROUND	TYPE: 9 Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: 9 Reflective
	COLOR: White

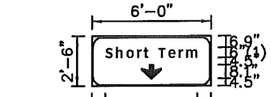
SYMBOL	ROT	X	Y	WID	HT
ARDOWN	0	30.1	4.5	11.8	8.1

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																				LENGTH	SERIES/SIZE
L	o	n	g		T	e	r	m													ClearviewHwy-5-W
9.8	15	21.6	27.8	32.1	38.7	44.5	50.9	55.4												52.3	6/4.9

SIGN DETAIL



FONT:
(1) ClearviewHwy-5-W

SIGN NUMBER	Sign 5
WIDTH x HGHT.	6'-0" x 2'-6"
BORDER WIDTH	1.25"
CORNER RADIUS	6"
MOUNTING	Overhead
BACKGROUND	TYPE: 9 Reflective
	COLOR: Blue
LEGEND/BORDER	TYPE: 9 Reflective
	COLOR: White

SYMBOL	ROT	X	Y	WID	HT
ARDOWN	0	30.1	4.5	11.8	8.1

Dimensions are in inches.tenths

Letter locations are panel edge to lower left corner

LETTER POSITIONS (X)																				LENGTH	SERIES/SIZE
S	h	o	r	t		T	e	r	m												ClearviewHwy-5-W
8.3	14.5	20.7	27.4	31.2	34.2	40.2	46	52.5	56.9											55.4	6/4.9

AS-BUILT DRAWINGS
JANUARY 2013

Registered Professional Engineer
REG. No. 9175
WADE D. FRANK
SOUTH DAKOTA
3/18/11

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

11"X17" SECTION TITLE

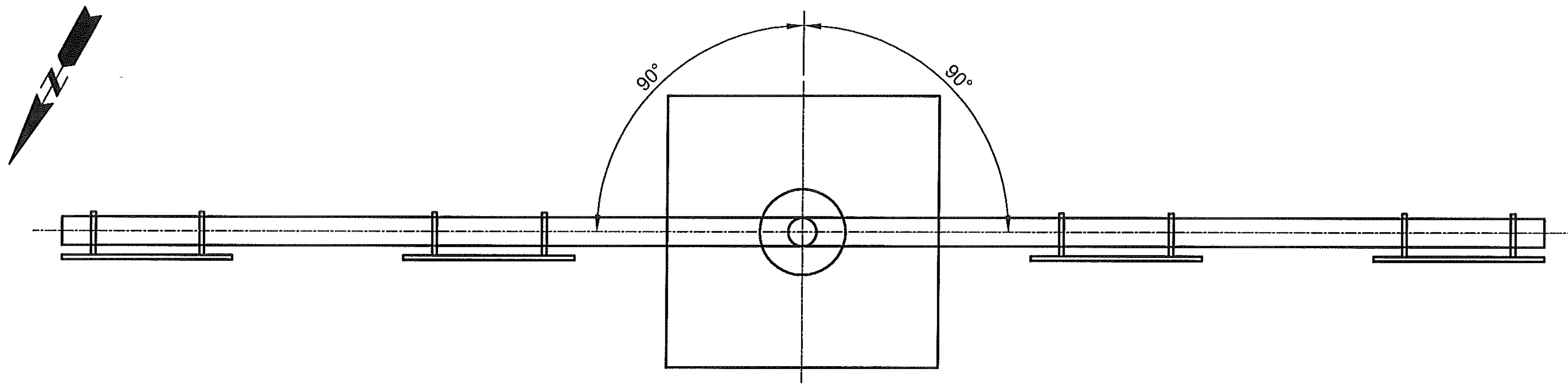
DESIGNED BY: JRK
DRAWN BY: JRK
CHECKED BY: WF
REVISIONS:
ACAD FILE: 50510108_Signsheet.dwg
DATE: 3/18/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

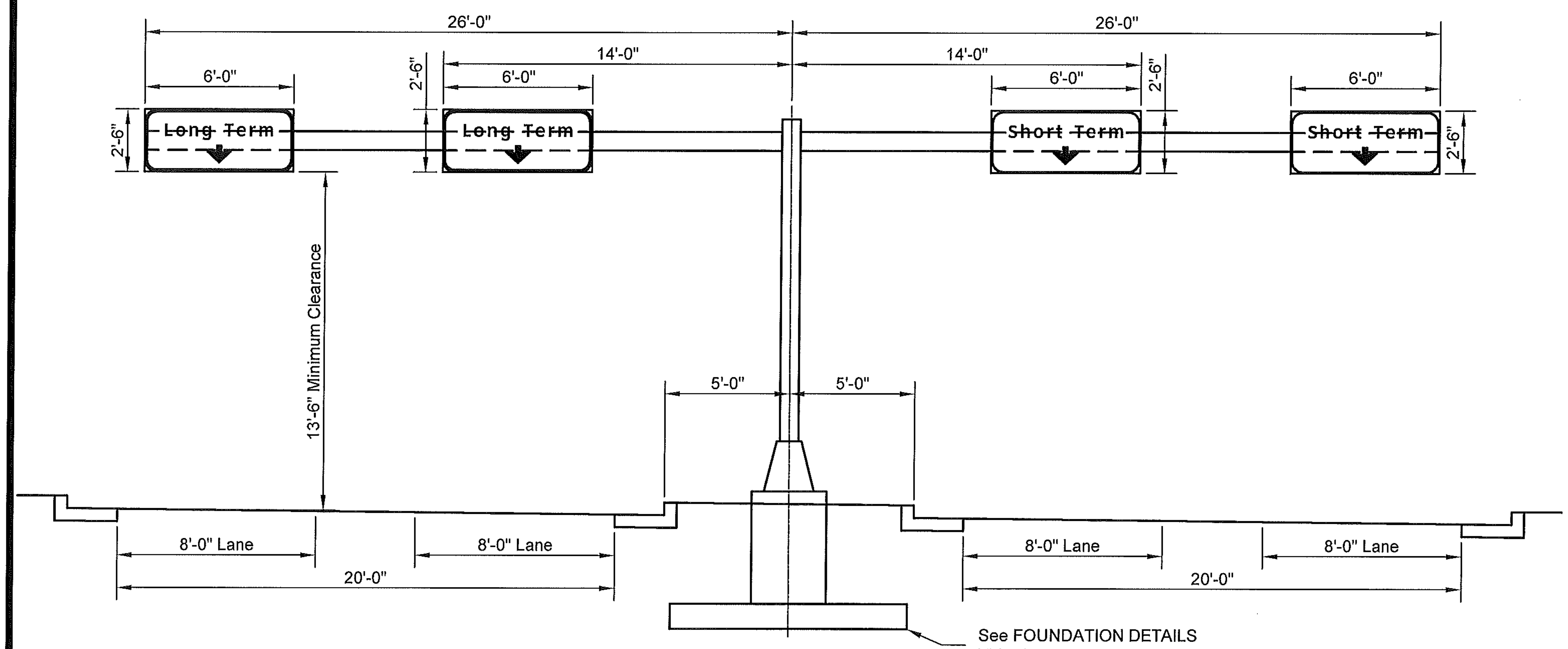
GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

Kadrmas Lee & Jackson Engineers Surveyors Planners

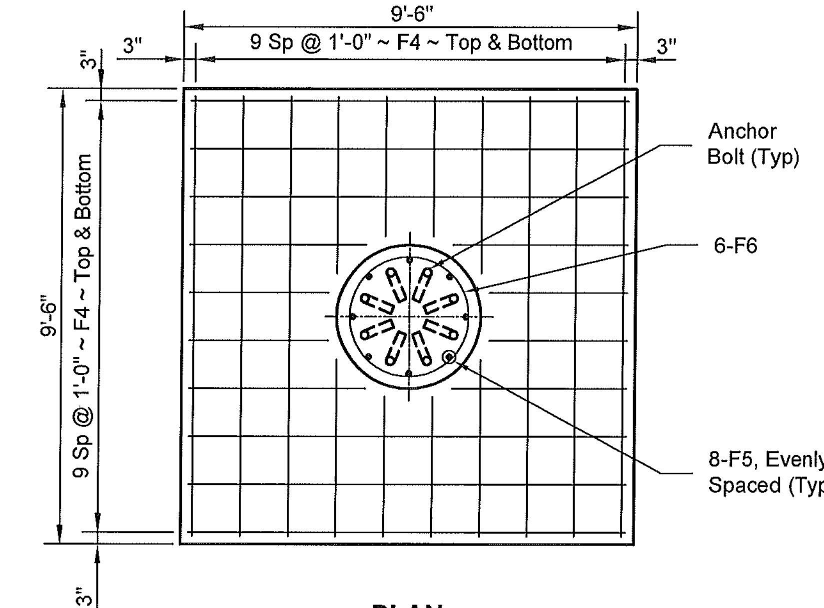
SHEET NO.
M10
OF
M12



PLAN



ELEVATION
(Looking South)



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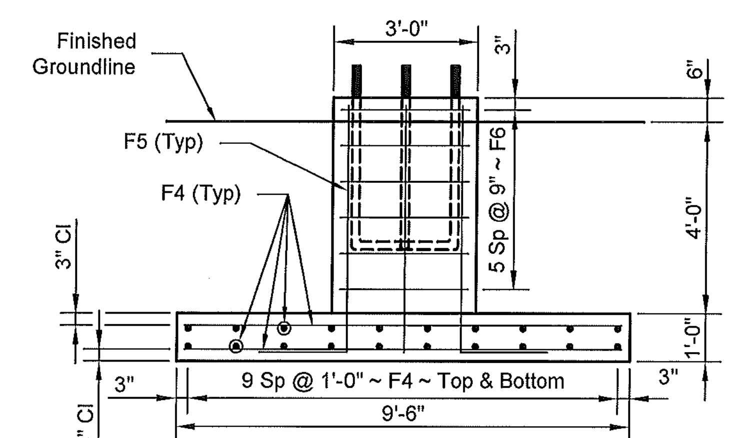


ELEVATION

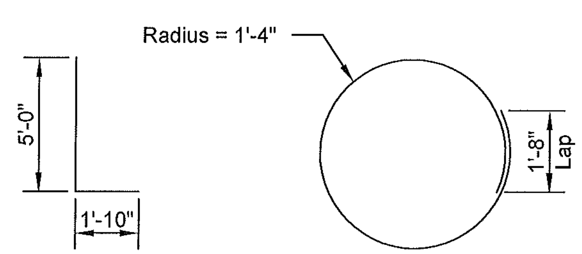
FOUNDATION DETAILS

AS-BUILT DRAWINGS
JANUARY 2013

Registered Professional Engineer
REG. No. 9175
WADE D. FRANK
SOUTH DAKOTA
3/16/11

NOTES:

1. The cost of all materials, labor and equipment required to construct the foundation, sign support structure, and signs shall be included in the bid item "Entrance Plaza Sign Structure #1."
2. Sign structure shall be constructed in accordance with Section 635 of the SDDOT Standard Specifications for Roads & Bridges.
3. All structural steel components shall be painted dark bronze to match the bollard lighting, parking lights and building window/door trim. Submit sample to Engineer for approval prior to painting.
4. Concrete shall have a 28-day compressive strength of 3,000 psi.
5. Reinforcing steel shall conform to the requirements of AASHTO M 31 Grade 60.



BAR BEND DETAILS

BILL OF REINFORCEMENT

BAR	NO.	SIZE	LENGTH	SHAPE	LOCATION
F4	40	5	9'-0"	straight	Top & Bottom of Footing
F5	8	10	6'-10"	L	Vertical in Column
F6	6	5	10'-1"	○	Column Tie

ESTIMATED FOUNDATION MATERIAL QUANTITIES
(FOR INFORMATIONAL PURPOSES ONLY)

REINFORCING STEEL (LBS)	CONCRETE (CY)
674	4.5

QUANTITIES
ENTRANCE PLAZA SIGN STRUCTURE #1 1 L SUM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

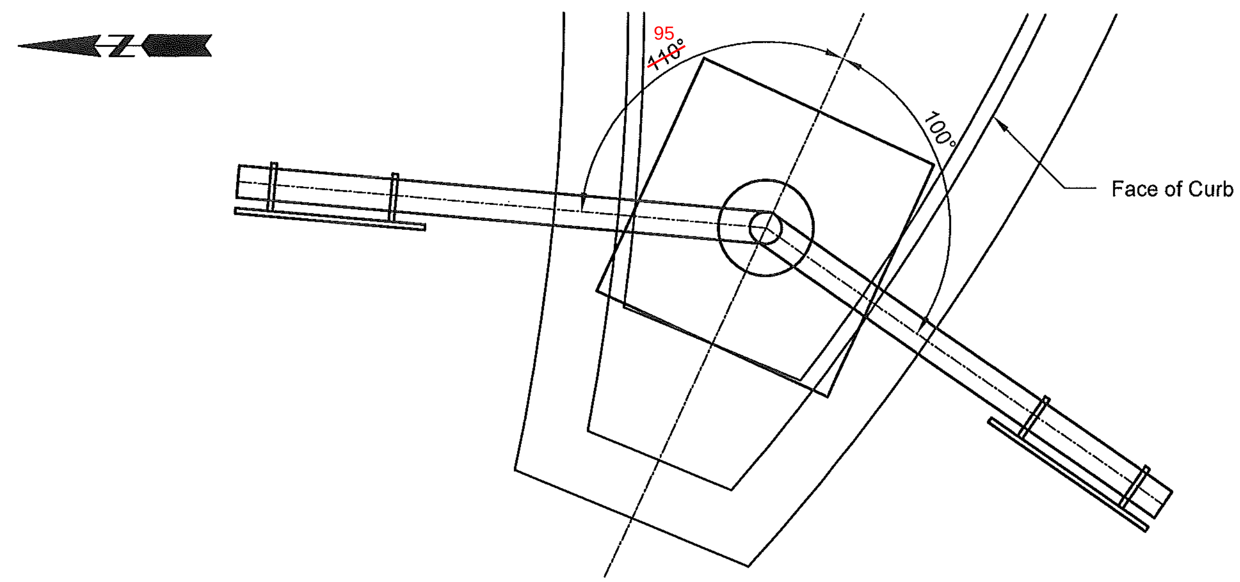
SYMMETRICAL OVERHEAD SIGN STRUCTURE

FSD SIOUX FALLS REGIONAL AIRPORT

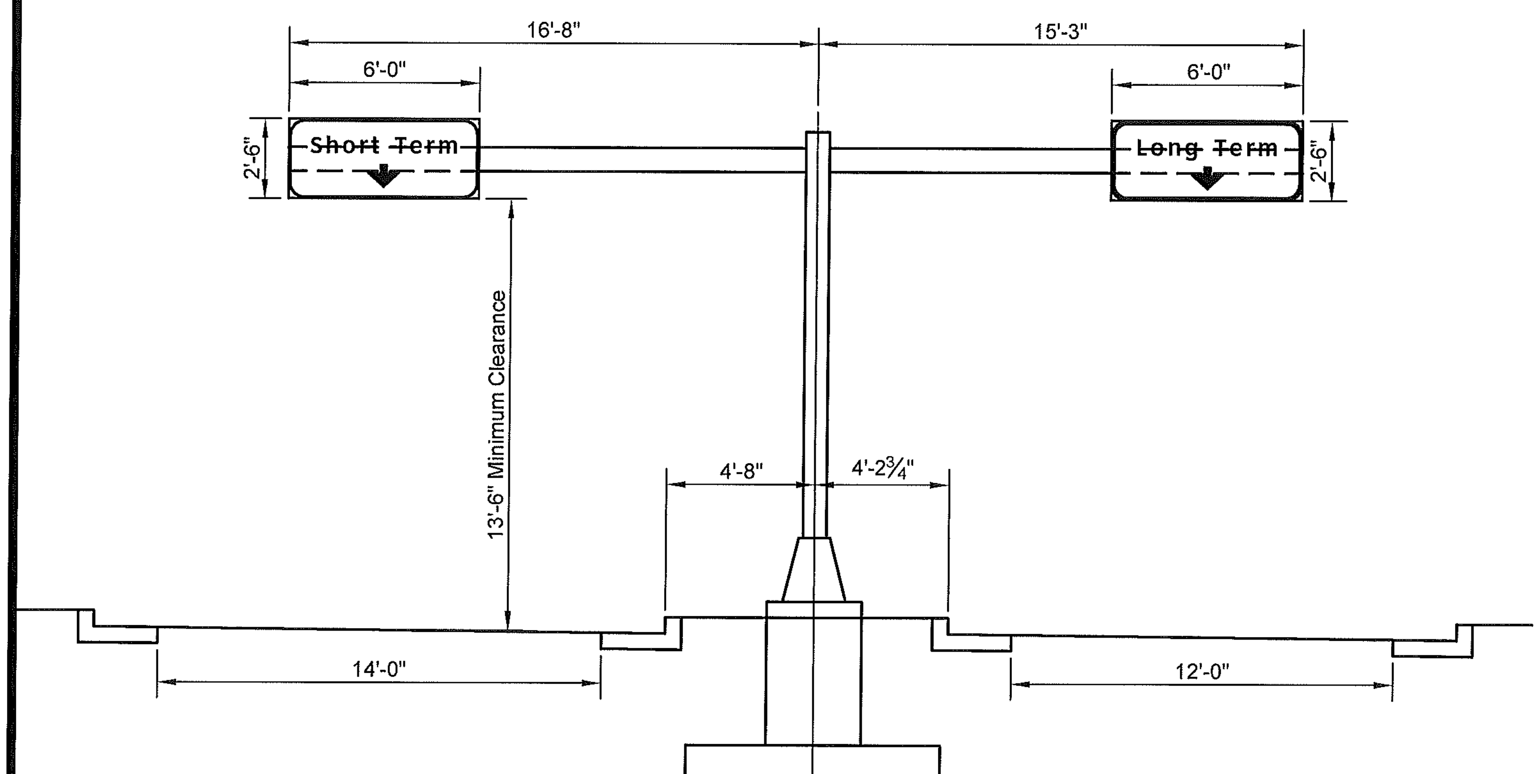
GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9885

Kadrmas Lee & Jackson
Engineers Surveyors Planners

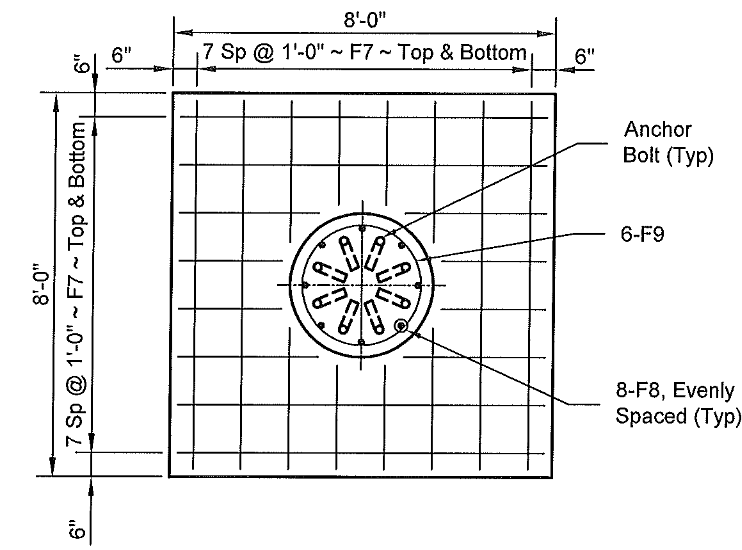
SHEET NO
M11
OF
M12



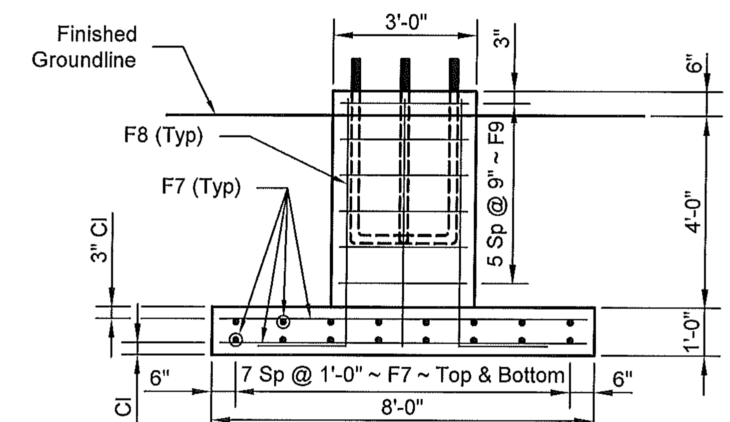
PLAN



ELEVATION
(Looking East)



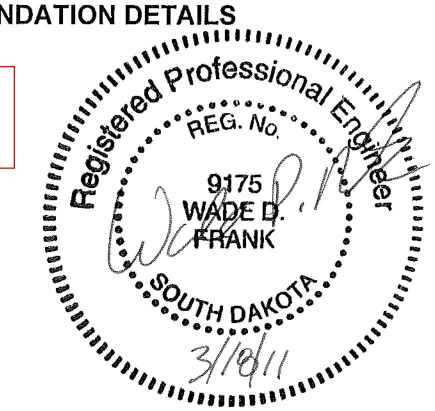
PLAN



ELEVATION

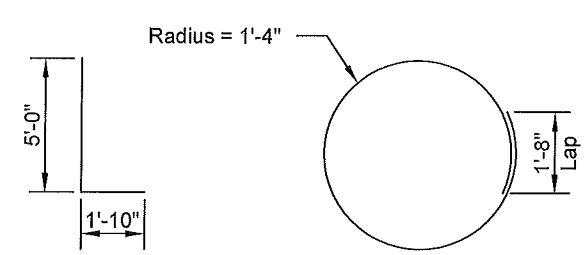
FOUNDATION DETAILS

AS-BUILT DRAWINGS
JANUARY 2013



NOTES:

1. The cost of all materials, labor and equipment required to construct the foundation, sign support structure, and signs shall be included in the bid item "Entrance Plaza Sign Structure #2."
2. Sign structure shall be constructed in accordance with Section 635 of the SDDOT Standard Specifications for Roads & Bridges.
3. All structural steel components shall be painted dark bronze to match the bollard lighting, parking lights and building window/door trim. Submit sample to Engineer for approval prior to painting.
4. Concrete shall have a 28-day compressive strength of 3,000 psi.
5. Reinforcing steel shall conform to the requirements of AASHTO M 31 Grade 60.



F8 F9

BAR BEND DETAILS

BILL OF REINFORCEMENT

BAR	NO.	SIZE	LENGTH	SHAPE	LOCATION
F7	32	5	7'-6"	——	Top & Bottom of Footing
F8	8	10	6'-10"	L	Vertical in Column
F9	6	5	10'-1"	O	Column Tie

ESTIMATED FOUNDATION MATERIAL QUANTITIES
(FOR INFORMATIONAL PURPOSES ONLY)

REINFORCING STEEL (LBS)	CONCRETE (CY)
549	3.5

QUANTITIES

ENTRANCE PLAZA SIGN STRUCTURE #2 1 L SUM

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SYMMETRICAL OVERHEAD SIGN STRUCTURE

FSD
SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK
ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9885

SHEET NO
M12
OF
M12

SECTION N LIGHTING NOTES

GENERAL ELECTRICAL CONDITIONS

The most current edition of the City of Sioux Falls General Conditions for Public Improvements and Supplemental Standard Specifications, together with the most current edition of the South Dakota Department of Transportation Standard Specifications for Roads and Bridges with Supplemental Specifications and Errata and required provisions, supplemental specifications, and/or special provisions as included in the Project Manual are hereby made a part of these specifications in its entirety unless otherwise revised, deleted, or supplemented herein.

Electrical installation shall adhere to the most recent National Electrical Code edition adopted by the State of South Dakota along with the City of Sioux Falls electrical codes and requirements.

LUMINAIRES

Luminaires shall be as specified in the lighting schedule including flood lights, area parking lot lights, roadway cobra heads, and pedestrian bollards. Each luminaire shall have internal fusing and ballast rated at the voltages indicated.

Each luminaire shall be provided and installed by the Contractor according to the project's plans and specifications along with the manufacturer's recommendations and requirements.

Contractor shall provide a lamp along with each luminaire. The Contractor shall align the fixtures as directed by the Field Engineer. In the case of the flood light the Contractor shall field adjust the aiming angle at night in the presence of the Owner and/or Field Engineer for optimal coverage.

All costs in providing and installing each luminaire shall be measured and paid for on a per each basis for each different type of luminaire provided. Included in the cost shall be the luminaire, lamp, ballast, internal fusing, and all other incidental items needed to complete the installation.

REMOVE CONCRETE FOUNDATION

The Contractor shall completely remove existing concrete foundations for any removed or relocated light standard. Any voids shall be backfilled and compacted to the same density as the adjoining ground.

REMOVE JUNCTION BOX

The Contractor shall remove junction box as indicated in the plans. Any voids shall be backfield and compacted to the same density as the adjoining ground.

MODIFICATION TO FEED POINT

Contractor shall modify existing feed point to provide power to the existing circuits as well as the propose circuits. Modification shall include but not limited to providing new circuit breakers sized as shown on the panel schedule. Contractor shall be permitted to reuse existing circuit breakers if in working condition and sized as per the NEC. The Contractor shall be responsible for balancing the loads to be within 10% of each phase.

The modification to the feed point shall be paid on a lump sum basis under "Feed Point Modification" to connect the indicated circuits including new circuit breakers and balancing of the phases.

MODIFICATION TO PANEL BOARD

Contractor shall modify existing panel board inside the terminal. Modification shall include disconnecting of existing parking lot lighting circuits and connecting up proposed circuits. The Contractor shall be permitted to reuse the existing circuit breakers as needed. Any additional circuit breakers needed shall be provide and installed by the Contractor as part of the "Panel Board Modification" bid item. The Contractor shall be responsible for balancing the loads to be within 10% of each phase.

The modification to the panel board inside the terminal shall be paid on a lump sum basis under "Panel Board Modification" to disconnect and connect up indicated circuits, circuit breakers, along with balancing of loads between the phases.

LIGHT POLE

The Contractor shall provide and install new light poles as indicated by the layout sheets and lighting schedule. The poles shall match existing parking lot and roadway poles in type, style, shape, and finish. Roadway light poles shall have transformer bases to match existing.

The light poles shall be installed with factory installed vibration dampening systems. Contractor shall provide and install all the necessary anchor bolts as required by the light pole manufacturer.

Contractor shall provide and install a 5/8"x10' ground rod adjacent to each concrete foundation. The ground rod shall be bonded to the light pole by means of a #6 AWG bare copper wire through a ½" pvc conduit sleeve.

The light pole shall be designed and installed per SDDOT Standard Specifications. All the necessary calculations and drawings used in the design of these poles shall be furnished with the shop drawing submittal. Calculations and work drawings used in the design of the lighting poles shall be signed, sealed, and dated by a Professional Engineer duly registered in the State of South Dakota.

JUNCTION BOXES

The Contractor shall provide and install junction boxes at locations shown and be the size as indicated in the plans. The Junction box shall be installed as shown in the detail and as per the manufacturer's installation instructions.

Contractor shall provide and install junction box dividers as needed to maintain separation between different systems as required by the NEC.

Electrical junction boxes shall be non metallic and as shown in the detail. Junction box shall be of the open bottom type with conduit entering through the bottom. Coarse aggregate shall be installed as bases as shown in the detail and as specified in the City of Sioux Falls and SDDOT standard specifications.

Junction boxes shall be measured and paid for at the contract price for each different size provided and installed. The appropriate designation of the lid of the junction box shall indicate ELECTRICAL or COMMUNICATION.

CONDUIT

Conduit shall be installed at a minimum depth of 24" as indicated in the City of Sioux Falls standard specifications. All spare conduit ends shall be capped and sealed for future use. All conduit installed shall bear the Underwriter's Laboratory's label.

The cost of the method of installation shall be included in the contract price of the associated conduit, this shall include all boring, trenching, backfilling, compaction, and all restoration.

All connections to existing conduit, including any necessary fittings shall be included in the contract unit price per foot for the conduit.

CONDUCTORS

Electrical conductors shall be provided and installed in conduit. All conductors shall be the type and size indicated meeting City of Sioux Falls and NEC standards and requirements.

All conductors shall be paid for per linear foot for each separate size indicated. Included in the bid price shall be all labor to provide and install conductor in conduit along with making connection and/or splices.

TEMPORARY LIGHTING

The Contractor shall disconnect the existing lighting services that correspond to project construction phases. Parking lots and roadway sections that are not under construction and open to the public for use the lighting shall remain in operation. Areas that are closed off due to construction may be disabled. The Contractor shall provide all the necessary temporary lighting conductors, trenching, and connections needed as directed by the Field Engineer.

The cost of maintaining the temporary lighting for the designated sections shall be measured and paid for on a lump sum price for all work, labor, and materials needed to maintain the lighting system operational in open/active areas.

UTILITY COORDINATION

The Contractor shall coordinate with Mike Burkard with Municipal Light & Power on providing a new electrical service for the proposed exit plaza. The electrical service shall be rated at 200 amps, 120/240V single phase.

The Utility Company shall supply primary along with a pad mounted transformer and meter at an approximate location shown. The Contractor shall be responsible for a new meter socket with a bypass lever, service disconnect, all secondary conductors, trenching, and conduit sweep from the transformer to the meter location. The meter shall be located on the side of the building. The Contractor shall coordinate with the exit plaza contractor on mounting and installed the electrical service.

The meter socket shall be meet the requirements of the Utility Company. The new electrical service shall meet the requirements of the NEC and State of South Dakota and City of Sioux Falls electrical codes.

The Contractor shall be responsible for any additional fees imposed by the Utility Company for providing the new transformer and primary service to the new exit plaza.

The utility coordination for the new electrical service shall be measured and paid for on a lump sum basis under "Utility Electrical Service". Included shall be all materials, labor, and incidental items including any imposed fees by the Utility to install the new service complete.

REMOVE AND RESET LUMINAIRE POLE

Existing luminaire poles as indicated in the plans shall be removed and reset to new locations as shown on the plan sheets. Luminaire poles and luminaires damaged during relocation shall be repaired or replaced by the Contractor at no cost to the Owner. It shall be the Contractor's responsibility to obtain the bolt circle pattern and anchor bolts for the relocated poles from the pole manufacturer.

All costs involved with removing and resetting the existing luminaire poles shall be incidental to the contract unit price per each for "Remove and Reset Luminaire Pole".

PULL WIRES

Provide a #10 AWG pull wire in all spare conduits. The cost of providing and installing pull wires shall be included in the contract price per foot for 1/C #10 AWG Copper Wire.

EXIT SIGN CONNECTION

The Contractor shall connect the internally lit exit signs up to the designated circuit. The Contractor shall coordinate with the sign supplier and the prime contractor on providing a conduit sweeps for the entering/exiting conductors. The connection of the exit signs shall be considered incidental to the cost of providing and installing the underground conductors. No additional payment shall be made for connecting the internally lit signs to the appropriate circuit.

WELL PUMP CONNECTION

The Contractor shall install the well pump and well pump controls. The well pump and controls are being providing by the well contractor. The electrical contractor shall be responsible for providing all the necessary conduit, conductors, connections, and required disconnects. The well pump controls shall be located and powered from the exit plaza. Contractor shall coordinate with exit plaza contractor on exact location and entrances into the plaza building.

The well pump is rated for 5hp at 240 volt single phase, all the required disconnects and circuit breakers shall be sized as required by the NEC and as recommended by the pump manufacturer.

Included in the cost of the well pump connection shall be all underground conductors and conduit needed from the exit plaza to well pump location.

The cost of connecting up the well pump and controls shall be measured and paid for on a lump sum basis including disconnects, circuit breakers, conduit, conductors, connections, and installation of controls to complete the well water system.

LOOP DETECTOR

The Contractor shall install preformed loop detectors for each gate arm. The preformed loops shall be provided by the gate supplier and installed by the Contractor. The loops shall be installed per the manufacturer's recommendations and requirements.

The cost of installing the loops shall be measured and paid for on a per each basis for each loop installed.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

GENERAL NOTES

DESIGNED BY: CH
DRAWN BY: CH
CHECKED BY: CH
REVISIONS:
FILE: 210710_General Notes.doc
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - PH: 605.332.9665

SHEET NO.
N1
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N13

EXISTING FEEDPOINT TO REMAIN IN PLACE.

EXISTING ROADWAY LIGHT TO BE DISCONNECTED AND RELOCATED. CONCRETE FOUNDATION SHALL BE REMOVED AND DISPOSED OF.

EXISTING ROADWAY LIGHT TO REMAIN IN PLACE.

EXISTING ROADWAY LIGHT TO REMAIN IN PLACE.

EXISTING JUNCTION BOX TO BE REMOVED AND DISPOSED OF.

EXISTING CONDUCTORS TO BE DISCONNECTED AND REMOVED. CONDUIT SHALL BE ABANDONED IN PLACE.

EXISTING ROADWAY LIGHT TO REMAIN IN PLACE.

EXISTING JUNCTION BOX TO REMAIN IN PLACE.

EXISTING PARKING LOT LIGHT TO BE DISCONNECTED AND RELOCATED. CONCRETE FOUNDATION SHALL BE REMOVED AND DISPOSED OF.

EXISTING ROADWAY LIGHT TO REMAIN IN PLACE.

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EXISTING ROADWAY LIGHT TO REMAIN IN PLACE.

MATCH LINE

MATCH LINE

AIRPORT TERMINAL

SCALE: 1"=100'

0 50 100 FT

GENERAL NOTES:

1. FIELD VERIFY THE EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

2. CONTRACTOR SHALL REMOVE AND DISPOSE OF CONCRETE FOUNDATIONS INDICATED TO BE REMOVED.

3. CONTRACTOR SHALL DISCONNECT AND RELOCATE EXISTING ROADWAY AND PARKING LOT LIGHTS AS INDICATED. THE DISCONNECTED LIGHTS SHALL BE SALVAGED AND STORED PRIOR TO RELOCATION. ANY DAMAGE TO THE REMOVED LIGHT FIXTURES AND STANDARDS DURING THE REMOVAL OR RELOCATING SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

4. CONTRACTOR SHALL DISCONNECT EXISTING CIRCUITS AS NEEDED FROM THE FEED POINT AND FROM THE PANEL INSIDE OF THE TERMINAL. CONTRACTOR SHALL VERIFY WHICH LIGHTS AND CIRCUITS NEED TO BE DISCONNECTED.

5. CONTRACTOR SHALL MAINTAIN EXISTING LIGHTS IN OPERATION AS NEEDED WITHIN AREAS NOT BEING AFFECTED BY CONSTRUCTION. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
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3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ELECTRICAL REMOVAL PLAN

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
N2
OF
N13

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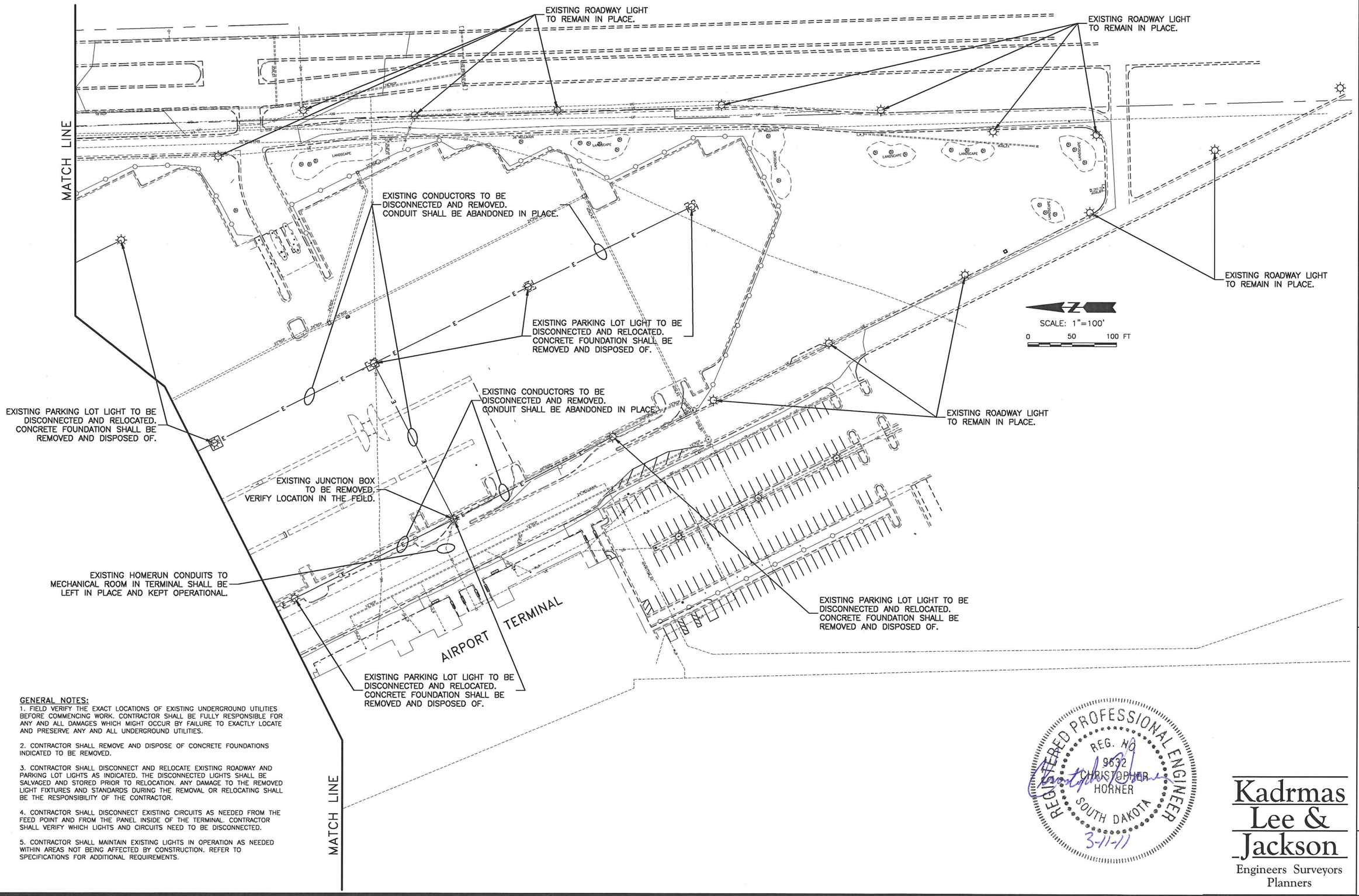

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REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9532
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3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ELECTRICAL REMOVAL PLAN

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

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SHEET NO.
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OF
N13

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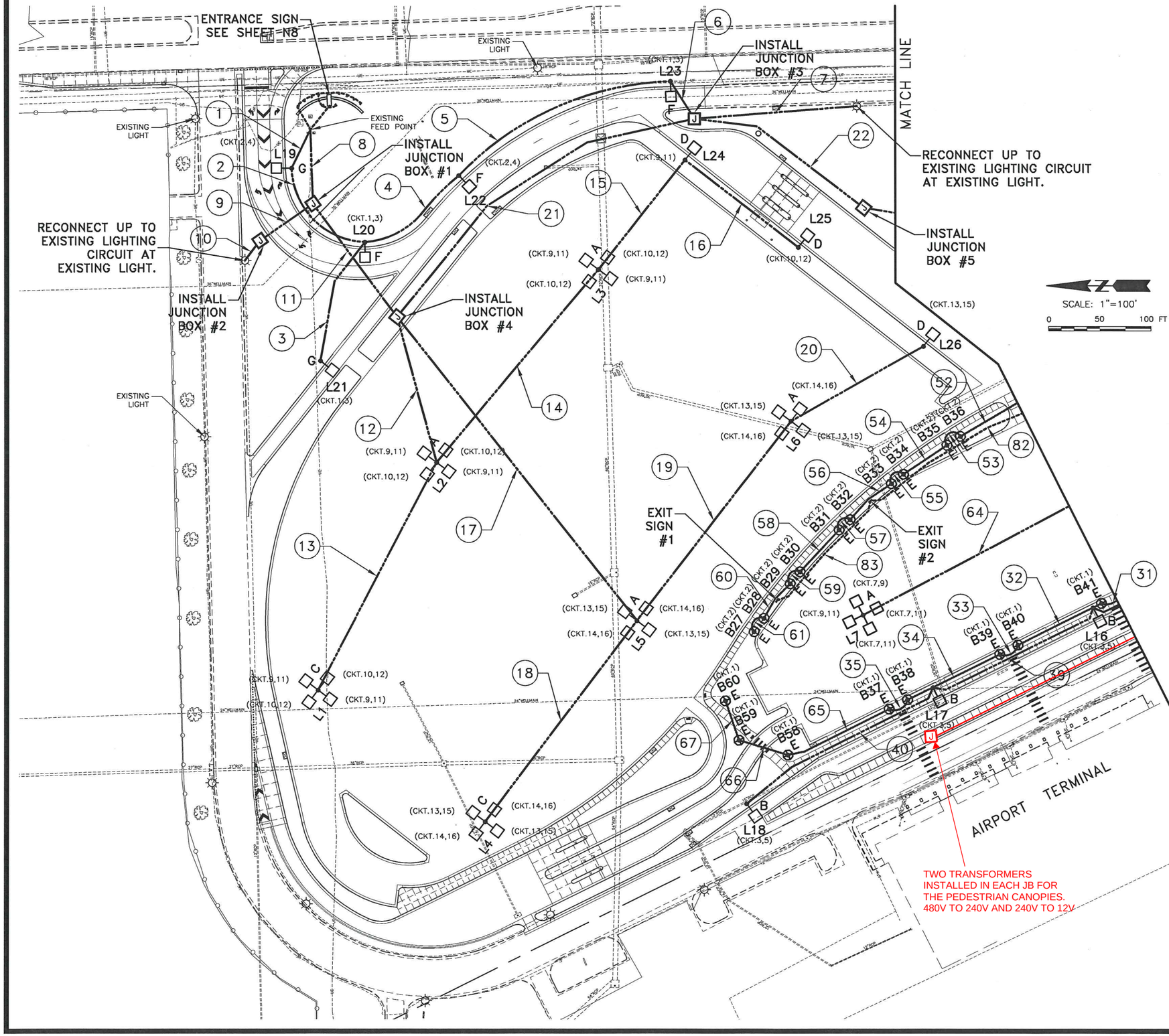

GENERAL NOTES:

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2. CONTRACTOR SHALL MAINTAIN TEMPORARY LIGHTING DURING THE SEPARATE PHASES OF CONSTRUCTION. LIGHTS IN AREAS THAT ARE INDICATED TO BE OPENED FOR PUBLIC USE SHALL REMAIN CONNECTED AND IN OPERATION. COORDINATE WITH THE FIELD ENGINEER ON WHICH LIGHTS AND AREAS THAT ARE TO REMAIN IN OPERATION OR BE DISABLED.

3. CONTRACTOR SHALL RECONNECT CIRCUITS TO EXISTING LIGHTS AS SHOWN. CONNECTIONS OF PROPOSED CIRCUITS TO EXISTING CIRCUITS AND LIGHTS SHALL BE INCIDENTAL TO THE COST OF THE UNDERGROUND CONDUCTORS.

4. CONTRACTOR SHALL REUSE EXISTING PANEL INSIDE TERMINAL FOR THE PROPOSED EXIT SIGNS, SHORT TERM PARKING LOT, PEDESTRIAN BOLLARDS, AND WELCOME SIGN LIGHTS. CONTRACTOR SHALL BE PERMITTED TO REUSE EXISTING CIRCUIT BREAKERS AS NEEDED. ANY ADDITIONAL CIRCUIT BREAKERS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR.

5. ALL PROPOSED LIGHTS SHALL BE TIED INTO THE EXISTING LIGHTING CONTROL CIRCUIT AT THE FEED POINT AND INSIDE THE TERMINAL. CONTRACTOR SHALL BE PERMITTED TO REUSE THE EXISTING LIGHTING CONTACTORS. IF ADDITIONAL POLES ARE NEEDED, THE CONTRACTOR SHALL PROVIDE A NEW CONTACTOR WITH A MINIMUM OF 8 POLES AND RATED FOR 60AMPS.

6. COORDINATE EXACT LOCATIONS OF PEDESTRIAN BOLLARDS WITH THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. PARKING LOT LIGHTS SHALL BE INSTALLED AT THE INTERSECTIONS OF THE PARKING STRIPES. IF PROPOSED LOCATIONS CONFLICT WITH UNDERGROUND UTILITIES THE CONTRACTOR SHALL INFORM THE ENGINEER FOR APPROVAL OF SHIFTING OF THE LIGHT TO THE NEXT PARKING STALL.

8. CONTRACTOR SHALL UTILIZE EXISTING CONDUIT RUNS FROM THE TERMINAL FOR THE PROPOSED LIGHTING. ADDITIONAL CONDUIT STUBS ARE BEING PROVIDED UNDER THE TERMINAL BUILDING ADDITION PROJECT.

9. SEE SHEET H8 FOR SIGNAL UNDERGROUND AND MINNESOTA AVENUE STREET LIGHTING WORK.

PROPOSED LEGEND

- A / ⊕B# — BOLLARD LIGHT
  - A = FIXTURE TYPE
  - B# = LIGHT NUMBER
- A / L# — SINGLE LIGHT
  - A = FIXTURE TYPE
  - L# = LIGHT NUMBER
- B / L# — 4-WAY LIGHT
  - B = FIXTURE TYPE
  - L# = LIGHT NUMBER
- B / L# — FLOODLIGHT
  - B = FIXTURE TYPE
  - L# = LIGHT NUMBER
- 79 — CABLE RUN NUMBER
  - (REFER TO CABLE CONDUIT SCHEDULE)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED ELECTRICAL LAYOUT

DESIGNED BY: C.H. ACAD FILE: XXX.dwg
DRAWN BY: C.A.S. DATE: 3/11/2011
CHECKED BY: C.H.
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9885

SHEET NO.
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OF
N13

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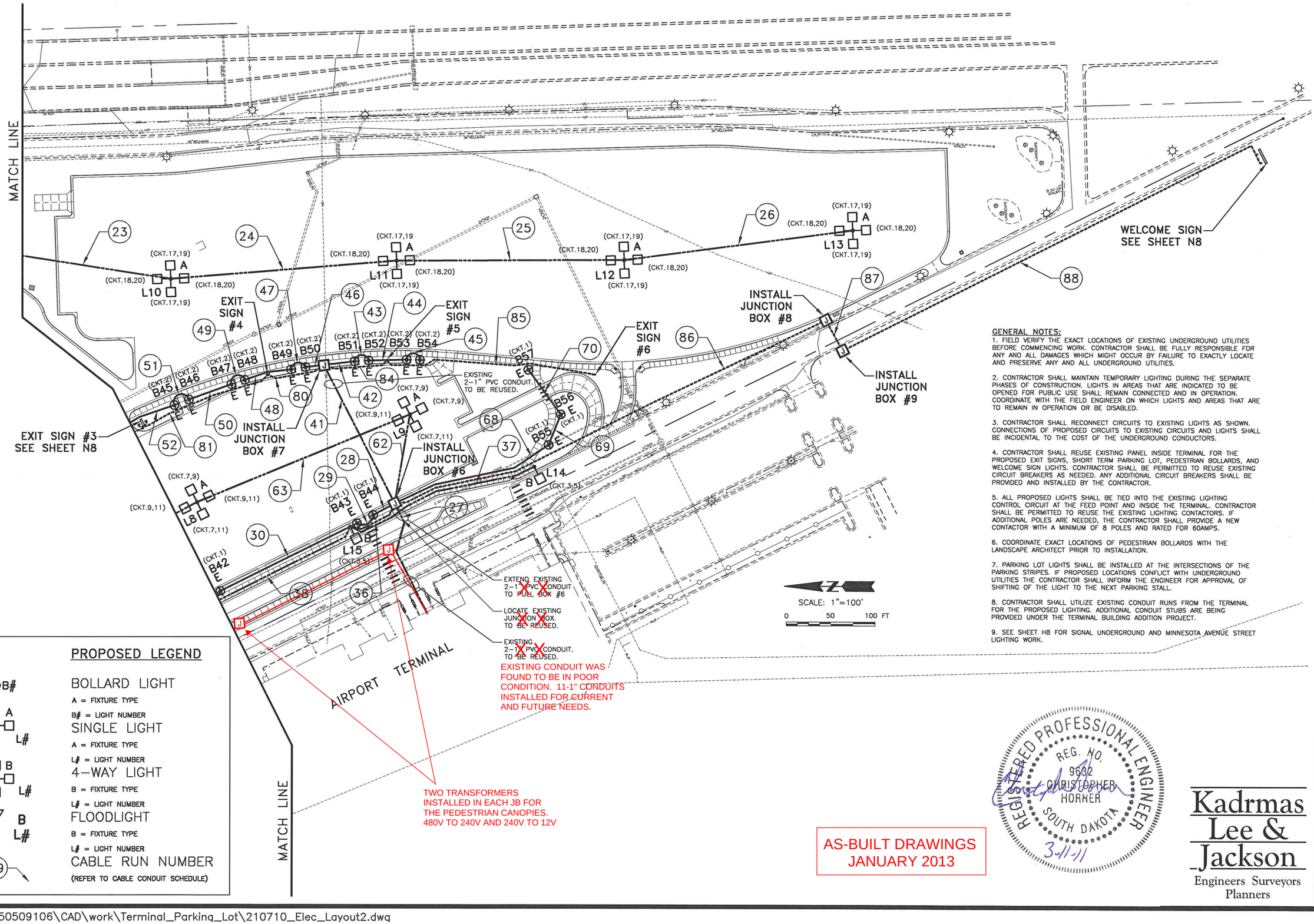

PROPOSED LEGEND

- BOLLARD LIGHT — A = FIXTURE TYPE; B# = LIGHT NUMBER
- SINGLE LIGHT — A = FIXTURE TYPE; L# = LIGHT NUMBER
- 4-WAY LIGHT — B = FIXTURE TYPE; L# = LIGHT NUMBER
- FLOODLIGHT — B = FIXTURE TYPE; L# = LIGHT NUMBER
- CABLE RUN NUMBER (REFER TO CABLE CONDUIT SCHEDULE)

GENERAL NOTES:

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6. COORDINATE EXACT LOCATIONS OF PEDESTRIAN BOLLARDS WITH THE LANDSCAPE ARCHITECT PRIOR TO INSTALLATION.

7. PARKING LOT LIGHTS SHALL BE INSTALLED AT THE INTERSECTIONS OF THE PARKING STRIPES. IF PROPOSED LOCATIONS CONFLICT WITH UNDERGROUND UTILITIES THE CONTRACTOR SHALL INFORM THE ENGINEER FOR APPROVAL OF SHIFTING OF THE LIGHT TO THE NEXT PARKING STALL.

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9. SEE SHEET H8 FOR SIGNAL UNDERGROUND AND MINNESOTA AVENUE STREET LIGHTING WORK.

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED ELECTRICAL LAYOUT

DESIGNED BY: C.H.
DRAWN BY: C.A.S.
CHECKED BY: C.H.
REVISIONS:
ACAD FILE: XXX.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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824 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
N5
OF
N13

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ENTRANCE SIGN
SEE SHEET N8

EXISTING LIGHT

EXISTING FEED POINT

JUNCTION BOX #1

JUNCTION BOX #2

JUNCTION BOX #3

JUNCTION BOX #4

JUNCTION BOX #5

L19 G

L20 (CKT.1,3) F

L21 G

L22 F

L23 F

L24 D

L25 D

L26 D

L1 C

L2 A

L3 A

L4 C

L5 A

L6 A

L7 A

L16 B

L17 B

L18 B

PRIVATE WELL PUMP LOCATION

UNDERGROUND CONDUCTORS AND CONDUIT AS REQUIRED

EXIT PLAZA BUILDING

FUTURE SECURITY CAMERA

INSTALL JUNCTION BOX #13

SEE NOTE 6.

INSTALL JUNCTION BOX #14

INSTALL JUNCTION BOX #10

SEE NOTE 5.

NORTH PARKING ENTRANCE PLAZA

EXIT SIGN #1

EXIT SIGN #2

92 93 94 96 98 99

B27 B28 B29 B30 B31 B32 B33 B34 B35 B36 B37 B38 B39 B40 B41 B56 B58 B59 B60

AIRPORT TERMINAL

MATCH LINE

MATCH LINE

SCALE: 1"=100'
0 50 100 FT

GENERAL NOTES:

1. FIELD VERIFY THE EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

2. SPARE CONDUITS SHALL BE INSTALLED FROM THE EXIT PLAZA TO LIGHTS L6 AND L12 FOR FUTURE POWERING OF SECURITY CAMERAS. SPARE CONDUITS SHALL ALSO BE INSTALLED FROM LIGHTS L6 AND L12 ROUTED BACK TO THE TERMINAL FOR FUTURE FIBER OPTIC CABLE.

3. ALL SPARE CONDUITS SHALL BE CONTAIN A #10 AWG PULL WIRE.

4. CONTRACTOR SHALL PROVIDE AND INSTALL ALL UNDERGROUND CONDUIT AND CONDUCTORS FROM THE PRIVATE WELL PUMP TO THE PUMP CONTROLS. THE PUMP CONTROLS SHALL BE LOCATED INSIDE THE EXIT PLAZA. ALL CONDUCTORS AND CONDUIT SHALL BE SIZED PER THE NEC WITH A MINIMUM CONDUCTOR SIZE OF #8 AWG AND CONDUIT SIZE OF 1" PVC. ALL UNDERGROUND CONDUCTORS AND CONDUITS ASSOCIATED WITH WELL PUMP AND CONTROLS SHALL BE INCIDENTAL TO THE COST OF THE WELL PUMP CONNECTIONS. SEE PLAN NOTES FOR ADDITIONAL REQUIREMENTS.

5. PROVIDE (2) 1 1/2" PVC CONDUIT FROM JUNCTION BOX #14 TO THE GATE #1 TO GATE #2 TO GATE #3 TO GATE #4. CONDUIT/CABLE LENGTHS AND SIZE NOT SHOWN IN SCHEDULE.

6. PROVIDE (2) 1 1/2" PVC CONDUIT FROM JUNCTION BOX #13 TO GATE. CONDUIT/CABLE NOT SHOWN IN SCHEDULE.

7. SHORT TERM EXIT GATE SHALL BE POWERED FROM THE EXIT PLAZA. PROVIDE NECESSARY CIRCUIT BREAKERS AS REQUIRED BY MANUFACTURER.

PROPOSED LEGEND

A B# — BOLLARD LIGHT
A = FIXTURE TYPE
B# = LIGHT NUMBER

A L# — SINGLE LIGHT
A = FIXTURE TYPE
L# = LIGHT NUMBER

B L# — 4-WAY LIGHT
B = FIXTURE TYPE
L# = LIGHT NUMBER

B L# — FLOODLIGHT
B = FIXTURE TYPE
L# = LIGHT NUMBER

79 — CABLE RUN NUMBER
(REFER TO CABLE CONDUIT SCHEDULE)

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-14

AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED POWER LAYOUT

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
N6
OF
N13

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED POWER LAYOUT

DESIGNED BY: C.H.
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CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

MATCH LINE

L10 A

L11 A

L12 A

L13 A

L9 A

L8 A

L14 B

L15 B

FUTURE SECURITY CAMERA

EXIT SIGN #4

EXIT SIGN #5

INSTALL JUNCTION BOX #15

EXIT SIGN #6

LONG TERM PARKING ENTRANCE GATE

JUNCTION BOX #8

1-#9841,1-#9842, 2-#8771

JUNCTION BOX INSTALLED IN OVERFLOW PARKING LOT ENTRANCE/EXIT MEDIAN.

WELCOME SIGN SEE SHEET N8

SCALE: 1"=100'

0 50 100 FT

B45 B46 B47 B48 B49 B50 B51 B52 B53 B54 B57

93 95 102 101 100

EXIT SIGN #3 SEE SHEET N8

JUNCTION BOX #7

JUNCTION BOX #9

SHORT TERM PARKING ENTRANCE GATE

B56 B55

JUNCTION BOX #6

INSTALL JUNCTION BOX #11

B43 B44

97 96

INSTALL JUNCTION BOX #12

B42

CONDUIT FOR SECURITY CAMERAS TO TERMINATE IN MECHANICAL ROOM

AIRPORT TERMINAL

MATCH LINE

PROPOSED LEGEND

A ⊕ B# — BOLLARD LIGHT
- A = FIXTURE TYPE
- B# = LIGHT NUMBER

A — L# — SINGLE LIGHT
- A = FIXTURE TYPE
- L# = LIGHT NUMBER

B — L# — 4-WAY LIGHT
- B = FIXTURE TYPE
- L# = LIGHT NUMBER

B — L# — FLOODLIGHT
- B = FIXTURE TYPE
- L# = LIGHT NUMBER

79 — CABLE RUN NUMBER
(REFER TO CABLE CONDUIT SCHEDULE)

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

GENERAL NOTES:
1. FIELD VERIFY THE EXACT LOCATIONS OF EXISTING UNDERGROUND UTILITIES BEFORE COMMENCING WORK. CONTRACTOR SHALL BE FULLY RESPONSIBLE FOR ANY AND ALL DAMAGES WHICH MIGHT OCCUR BY FAILURE TO EXACTLY LOCATE AND PRESERVE ANY AND ALL UNDERGROUND UTILITIES.

2. SPARE CONDUITS SHALL BE INSTALLED FROM THE EXIT PLAZA TO LIGHTS L6 AND L12 FOR FUTURE POWERING OF SECURITY CAMERAS. SPARE CONDUITS SHALL ALSO BE INSTALLED FROM LIGHTS L6 AND L12 ROUTED BACK TO THE TERMINAL FOR FUTURE FIBER OPTIC CABLE.

3. ALL SPARE CONDUITS SHALL BE CONTAIN A #10 AWG PULL WIRE.

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Engineers Surveyors Planners

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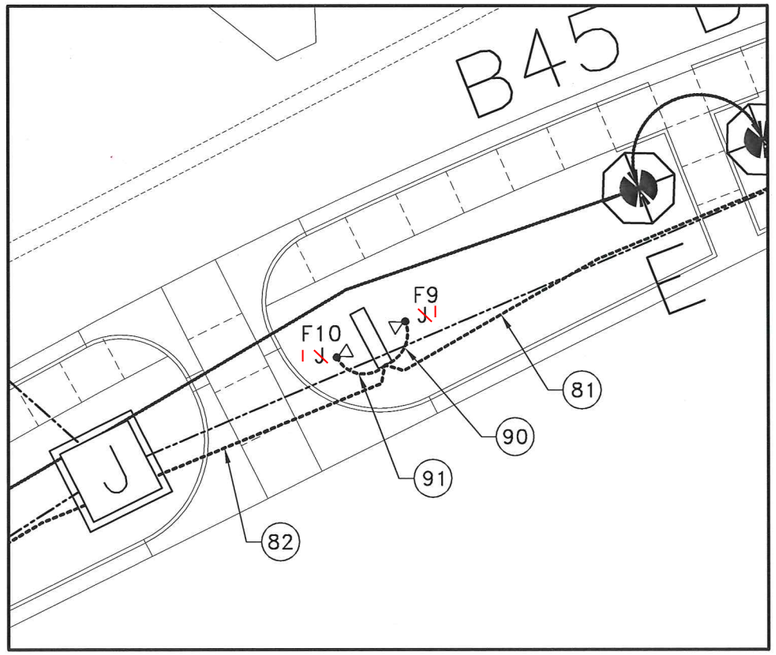
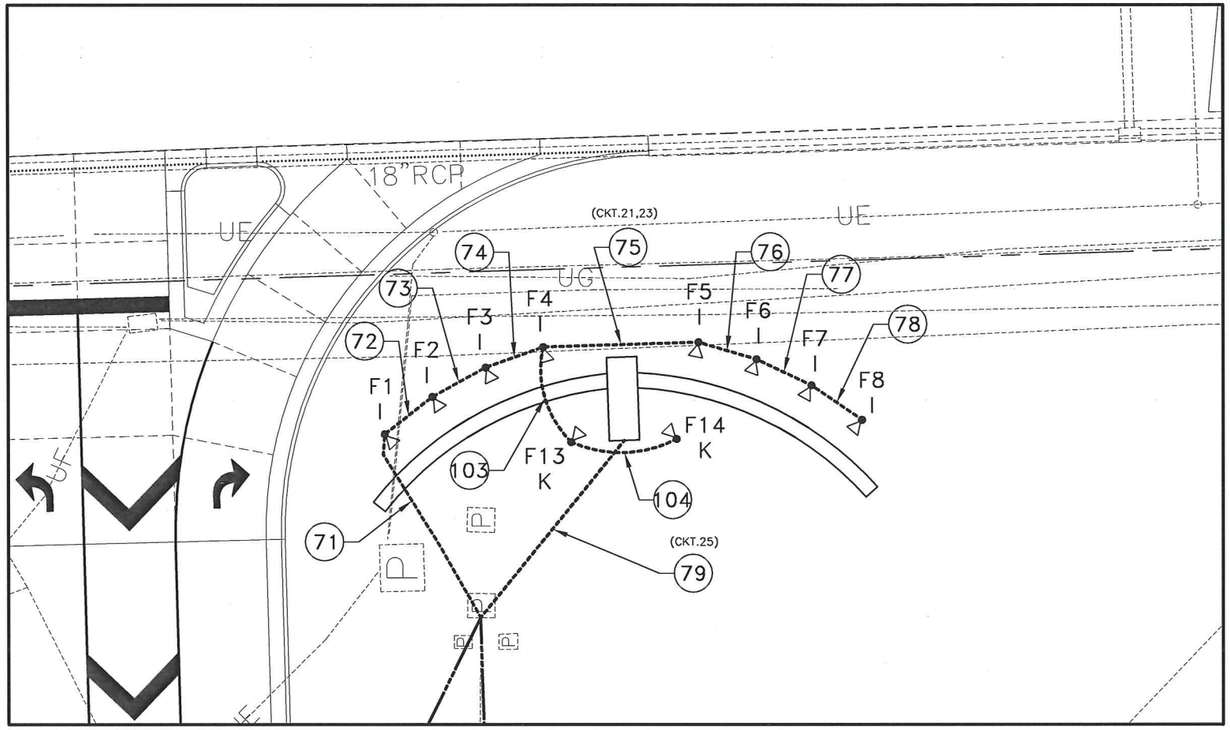
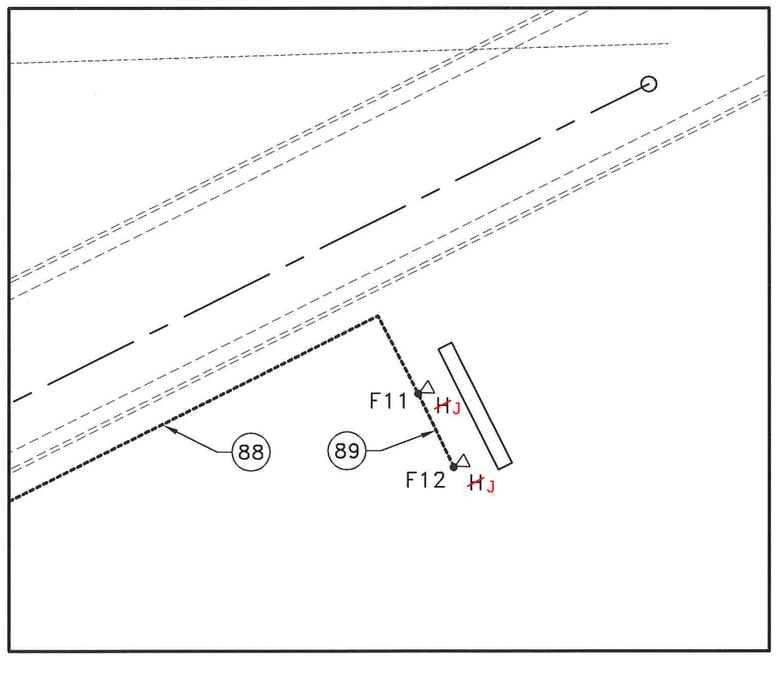


EXIT SIGN #3 DETAIL



ENTRANCE SIGN DETAIL



WELCOME SIGN DETAIL

SCALE: 1"=20'

0 10 20 FT

PROPOSED LEGEND

- A / B# — BOLLARD LIGHT
  - A = FIXTURE TYPE
  - B# = LIGHT NUMBER
- A / L# — SINGLE LIGHT
  - A = FIXTURE TYPE
  - L# = LIGHT NUMBER
- B / L# — 4-WAY LIGHT
  - B = FIXTURE TYPE
  - L# = LIGHT NUMBER
- B / L# — FLOODLIGHT
  - B = FIXTURE TYPE
  - L# = LIGHT NUMBER
- 79 — CABLE RUN NUMBER
  - (REFER TO CABLE CONDUIT SCHEDULE)

GENERAL NOTES:

1. SEE DETAILS FOR ADDITIONAL SETBACKS AND AIMING ANGLES REQUIREMENTS.
2. AIMING ANGLES SHOWN IN THE DETAIL ARE A STARTING POINT. FINAL ALIGNMENT/AIMING SHALL BE DONE AT NIGHT IN THE PRESENCE OF THE FIELD ENGINEER AND/OR OWNER FOR FINAL APPROVAL OF OPTIMUM LIGHT COVERAGE.
3. REFER TO PROPOSED LIGHTING LAYOUT SHEETS FOR GENERAL VICINITY OF EACH SIGN LOCATION.

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9932
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED ELECTRICAL LAYOUT

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

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SHEET NO.
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OF
N13

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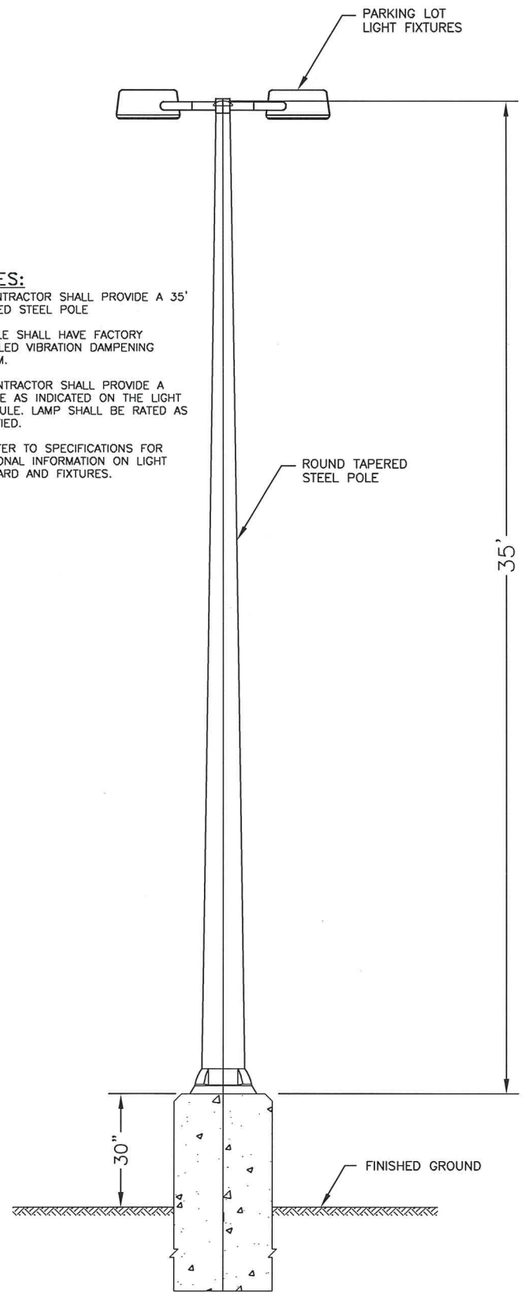
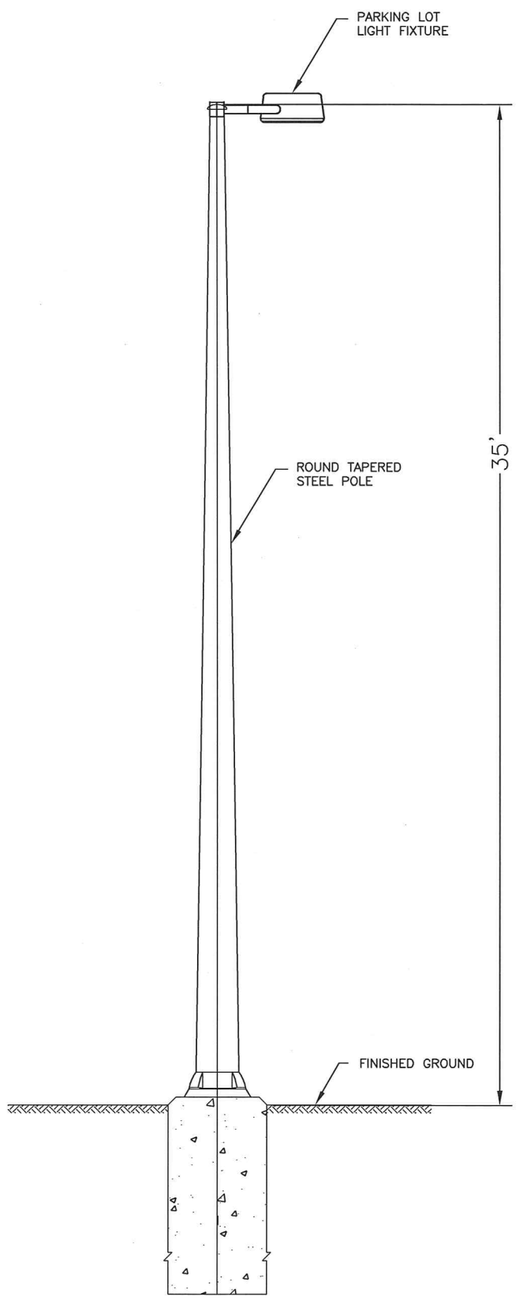
NOTES:

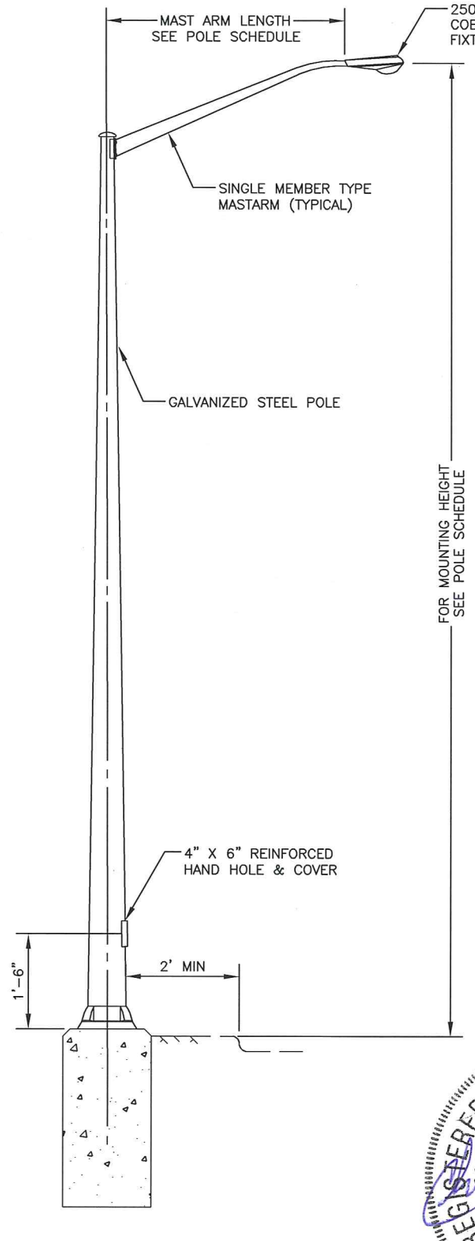
1. CONTRACTOR SHALL PROVIDE A 35' TAPERED STEEL POLE
2. POLE SHALL HAVE FACTORY INSTALLED VIBRATION DAMPENING SYSTEM.
3. CONTRACTOR SHALL PROVIDE A FIXTURE AS INDICATED ON THE LIGHT SCHEDULE. LAMP SHALL BE RATED AS SPECIFIED.
4. REFER TO SPECIFICATIONS FOR ADDITIONAL INFORMATION ON LIGHT STANDARD AND FIXTURES.



LIGHT STANDARD DETAIL
(TYPE A & C LIGHT FIXTURE)
NO SCALE



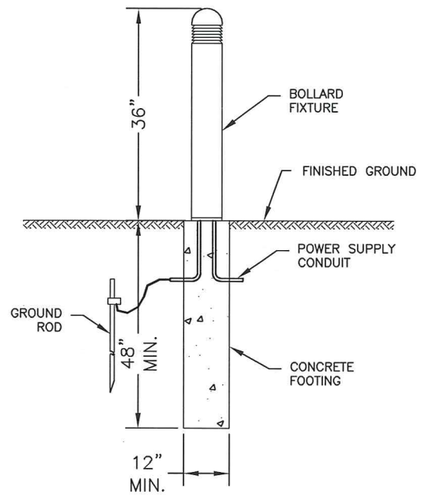
LIGHT STANDARD DETAIL
(TYPE B & D LIGHT FIXTURE)
NO SCALE



STREET LIGHT STANDARD
(TYPE F & G LIGHT FIXTURE)
NO SCALE

NOTE:

1. TOP OF FOUNDATION SHALL BE FINISHED SUCH THAT WATER SHALL DRAIN OFF AND NOT SIT NEAR THE BASE OF THE LIGHT STANDARD.



BOLLARD LIGHT DETAIL
(TYPE E LIGHT FIXTURE)
NO SCALE

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-13

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TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LIGHT STANDARD DETAILS

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

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SHEET NO.
N9
OF
N13

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LIGHTING CABLE & CONDUIT SCHEDULE - FEED POINT

RUN	ITEM	CONDUIT RUN		CABLE RUN	
		TOTAL LF	SIZE (IN)	TOTAL LF	SIZE/TYPE
1	Feed Point #1 to Light L19	43	1-1/2"	236 59	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 8 GROUND
2	Light L19 to Light L20	113	1-1/2"	500 125	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 8 GROUND
3	Light L20 to Light L21	129	1-1/2"	282 141	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3) UNDERGROUND CONDUCTOR NO. 8 GROUND
4	Light L20 to Light L22	117	1-1/2"	516 129	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 8 GROUND
5	Light L22 to Light L23	234	1-1/2"	984 246	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 8 GROUND
6	Light L23 to Junction Box #3	44	1-1/2"	224 56	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 8 GROUND
7	Junction Box #3 to Existing Light E2	160	1-1/2"	688 172	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 1,3 & CKT 2,4) UNDERGROUND CONDUCTOR NO. 6 GROUND
8	Feed Point #1 to Junction Box #1	296	(4) 1-1/2"	720 360 360 270 90	(8) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 CKT 10,12 CKT 13,15 & CKT 14,16) (4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) (4) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 5,7 & CKT 6,8) (3) UNDERGROUND CONDUCTOR NO. 8 GROUND UNDERGROUND CONDUCTOR NO. 10 GROUND
9	Junction Box #1 to Junction Box #2	128	(2) 1-1/2"	304 76	(4) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 5,7 & CKT 6,8) UNDERGROUND CONDUCTOR NO. 10 GROUND
10	Junction Box #2 to Existing Light E1	25	1-1/2"	148 37	(4) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 5,7 & CKT 6,8) UNDERGROUND CONDUCTOR NO. 10 GROUND
11	Junction Box #1 to Junction Box #4	556	(4) 1-1/2"	1208 604 453	(8) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 CKT 10,12 CKT 13,15 & CKT 14,16) (4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) (3) UNDERGROUND CONDUCTOR NO. 8 GROUND
12	Junction Box #4 to Light L2	149	1-1/2"	644 161	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 & CKT 10,12) UNDERGROUND CONDUCTOR NO. 8 GROUND
13	Light L2 to Light L1	253	1-1/2"	1060 265	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 & CKT 10,12) UNDERGROUND CONDUCTOR NO. 8 GROUND
14	Light L2 to Light L3	248	1-1/2"	1040 260	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 & CKT 10,12) UNDERGROUND CONDUCTOR NO. 8 GROUND
15	Light L3 to Light L24	138	1-1/2"	600 150	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 9,11 & CKT 10,12) UNDERGROUND CONDUCTOR NO. 8 GROUND
16	Light L24 to Light L25	141	1-1/2"	612 153	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 10,12) UNDERGROUND CONDUCTOR NO. 8 GROUND
17	Junction Box #4 to Light L5	381	1-1/2"	1572 393	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 13,15 & CKT 14,16) UNDERGROUND CONDUCTOR NO. 8 GROUND
18	Light L5 to Light L4	248	1-1/2"	1040 260	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 13,15 & CKT 14,16) UNDERGROUND CONDUCTOR NO. 8 GROUND
19	Light L5 to Light L6	248	1-1/2"	1040 260	(4) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 13,15 & CKT 14,16) UNDERGROUND CONDUCTOR NO. 8 GROUND
20	Light L6 to Light L26	150	1-1/2"	648 162	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 13,15) UNDERGROUND CONDUCTOR NO. 8 GROUND
21	Junction Box #4 to Junction Box #3	365	1-1/2"	1508 377	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
22	Junction Box #3 to Junction Box #5	194	1-1/2"	824 206	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
23	Junction Box #5 to Light L10	198	1-1/2"	840 210	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
24	Light L10 to Light L11	253	1-1/2"	1060 265	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
25	Light L11 to Light L12	254	1-1/2"	1064 266	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
26	Light L12 to Light L13	258	1-1/2"	1080 270	(4) UNDERGROUND CONDUCTOR NO. 2 THW (CKT 17,19 & CKT 18,20) UNDERGROUND CONDUCTOR NO. 8 GROUND
71	Feed Point #1 to Light F1	30	1"	92 46	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
72	Light F1 to Light F2	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
73	Light F2 to Light F3	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
74	Light F3 to Light F4	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
75	Light F4 to Light F5	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
76	Light F5 to Light F6	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
77	Light F6 to Light F7	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
78	Light F7 to Light F8	9	1"	42 21	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
79	Feed Point #1 to Entrance Sign	30	1"	92 46	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 25) UNDERGROUND CONDUCTOR NO. 10 GROUND
103	Light F4 to Light F13	14	1"	60 30	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND
104	Light F13 to Light F14	14	1"	60 30	(2) UNDERGROUND CONDUCTOR NO. 10 THW (CKT 21,23) UNDERGROUND CONDUCTOR NO. 10 GROUND

ELECTRICAL JUNCTION BOX				
TYPE	DESCRIPTION	DIMENSIONS		
		A	B	C
1	OPEN BOTTOM WITH GASKET	11"–15"	18"–21"	24" MIN.
2	OPEN BOTTOM WITH GASKET	13"–18"	24"–28"	24" MIN.
3	OPEN BOTTOM WITH GASKET	17"–22"	24"–30"	24" MIN.
4	OPEN BOTTOM WITH GASKET	28"–33"	36"–48"	24" MIN.

GENERAL NOTES:

1. THE COVER SHALL BE GASKETED WITH A MINIMUM OF TWO STAINLESS STEEL BOLTS AND WASHERS.

2. THE COVER SHALL HAVE A LIFTING EYE.

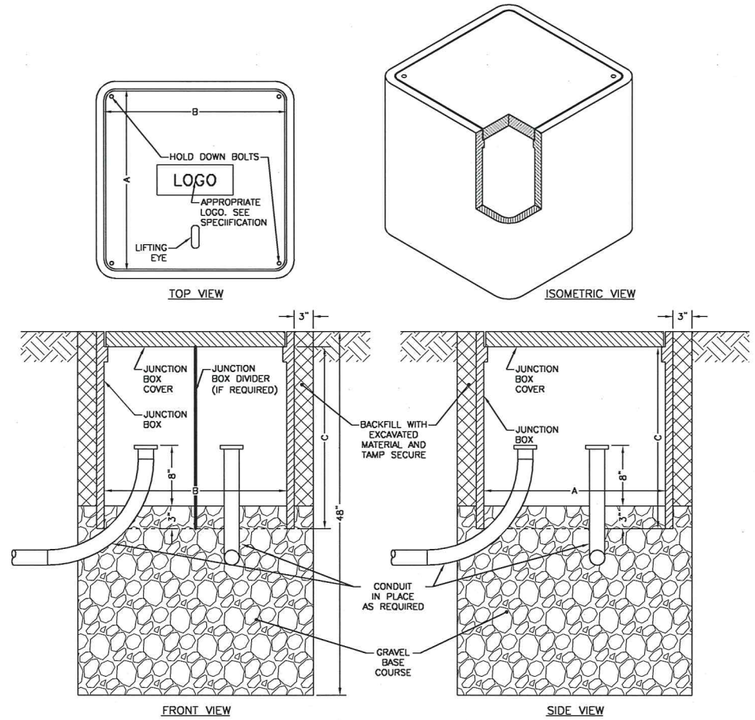
3. THE SURFACE OF THE COVER SHALL HAVE A MINIMUM WET AND DRY COEFFICIENT OF FRICTION VALUE OF 0.5 AS DETERMINED BY ASTM F 609.

4. THE COVER OF THE JUNCTION BOX SHALL HAVE THE APPROPRIATE LOGO IN ONE INCH SIZE LETTERS AND SHALL BE RECESSED. WHEN THE JUNCTION BOX CONTAINS CABLES OR WIRES FOR COMMUNICATION CIRCUIT THEN THE LOGO SHALL BE "COMMUNICATION". WHEN THE JUNCTION BOX CONTAINS LIGHTING CONDUCTORS THEN THE LOGO SHALL BE "LIGHTING".

5. THE ELECTRICAL JUNCTION BOXES SHALL COMPLY WITH THE AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)/SOCIETY OF CABLE TELECOMMUNICATIONS ENGINEERS (SCTE) 77 2007 SPECIFICATION FOR UNDERGROUND ENCLOSURE INTEGRITY. THE LOADING REQUIREMENT FOR ALL THE ELECTRICAL JUNCTION BOXES SHALL BE TIER 8 OF ANSI/SCTE 22 2007.

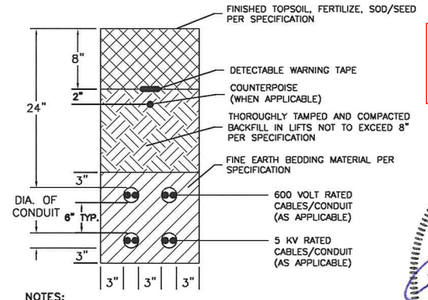
6. THE ELECTRICAL JUNCTION BOXES SHALL BE UL LISTED.

JUNCTION BOX	
NUMBER	TYPE
#1	4
#2	2
#3	2
#4	4
#5	1
#6	4
#7	2
#8	1
#9	1
#10	1
#11	1
#12	1
#13	3
#14	3
#15	3



JUNCTION BOX DETAIL

NO SCALE



NOTES:

1. INCREASE TRENCH WIDTH AND OVERALL DEPTH OF TRENCH SO THE SHALLOWEST CURRENT CARRYING CONDUCTORS ARE A MINIMUM 24" BELOW FINISHED GRADE.

2. FOR MULTIPLE CONDUITS OF THE SAME OPERATION VOLTAGE, PLACE CONDUITS IN SINGLE LAYER AND INCREASE THE WIDTH OF THE TRENCH TO ACCOMMODATE REQUIRED 3" SPACINGS.

3. FOR CONDUITS OF DIFFERENT VOLTAGE RATINGS INCREASE TRENCH DEPTH TO ACCOMIDATE A 6" VERTICAL SEPARATION.

4. DECREASE TRENCH WIDTH AND DEPTH TO ACCOMODATE THE NUMBER OF CONDUITS BEING INSTALLED. THE REDUCTION IN TRENCH WIDTH AND DEPTH SHALL BE AS NEEDED TO RETAIN THE REQUIRED 3" SPACING AROUND THE CONDUITS.

TYPICAL CONDUIT TRENCH DETAIL

NO SCALE

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER MOHNEN
SOUTH DAKOTA
3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ELECTRICAL DETAILS

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

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OF
N13

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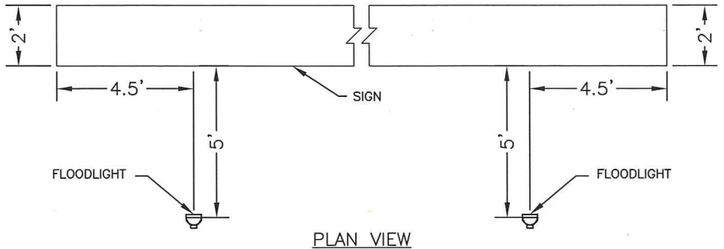
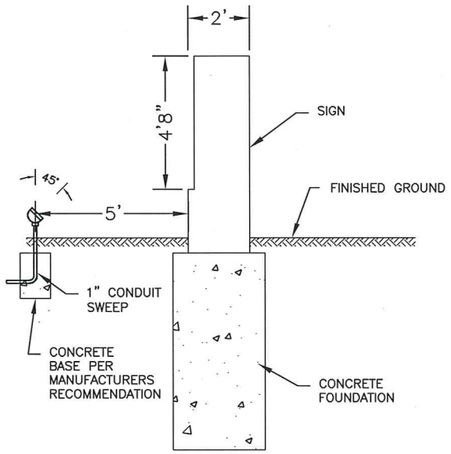


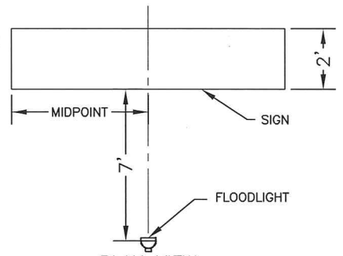
PLAN VIEW



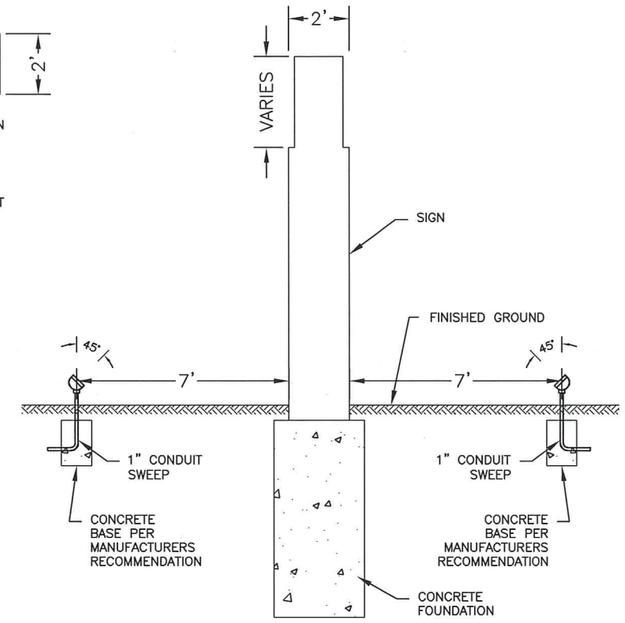
ELEVATION VIEW

WELCOME SIGN LIGHTING DETAIL

NO SCALE



PLAN VIEW

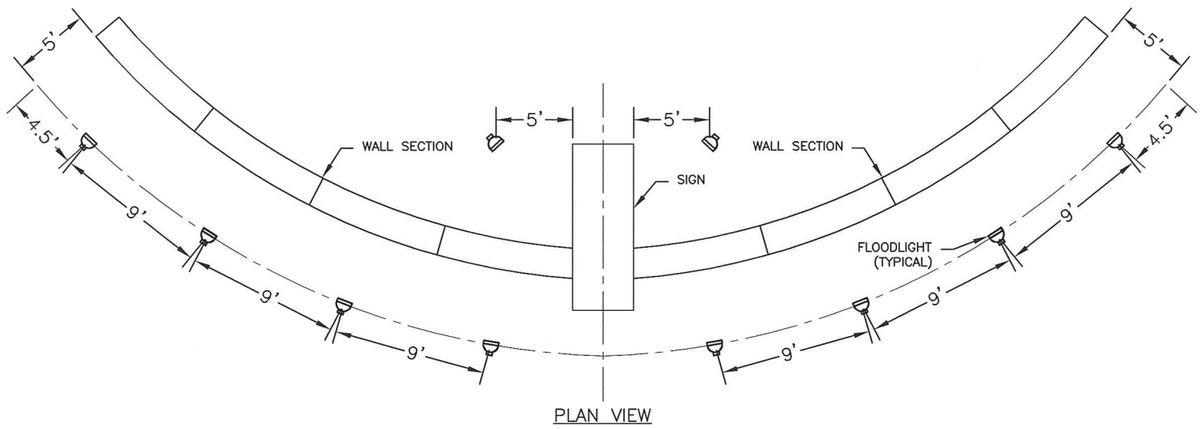


ELEVATION VIEW

EXIT SIGN LIGHTING DETAIL

NO SCALE

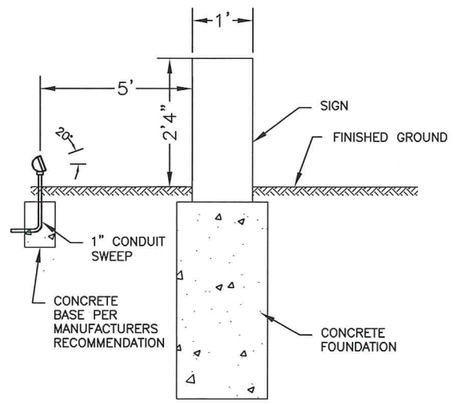
AS-BUILT DRAWINGS
JANUARY 2013



PLAN VIEW

ENTRANCE SIGN LIGHTING DETAIL

NO SCALE



ELEVATION VIEW

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-11-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SIGN LIGHTING DETAILS

DESIGNED BY: C.H.
DRAWN BY: C.A.S.
CHECKED BY: C.H.
REVISIONS:
ACAD FILE: XXX.dwg
DATE: 3/17/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

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N11
OF
N13

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LIGHTING SCHEDULE									
DESIGNATION	LIGHT FIXTURE			LIGHT STANDARD				DESCRIPTION	REMARKS
	MANUFACTURER	MODEL	LAMPS PER FIXTURE & TYPE	MANUFACTURER	MODEL	POLE HEIGHT	FOUNDATION TYPE		
A	EXISTING LIGHT FIXTURE	N/A	4-1000W MH	EXISTING LIGHT STANDARD	N/A	35'	TYPE AA	N/A	RELOCATED 4 LIGHT FIXTURES ON A 35' LIGHT STANDARD
B	EXISTING LIGHT FIXTURE	N/A	1-1000W MH	EXISTING LIGHT STANDARD	N/A	35'	TYPE BB	N/A	RELOCATE SINGLE LIGHT FIXTURES ON A 35' LIGHT STANDARD
C	SPAULDING OR APPROVED EQUIVALENT	CE2-H1K-H4-F-5-DB-F5/ARM-S-10-T45-DB	4-1000W MH	VALMONT OR APPROVE EQUIVALENT	DS210-850A350-DRILLED-AB-HH-FBC-FP/F264AL/OVER GALVANIZED STEEL POLE W/ ALUMINUM FINISH	35'	TYPE BB	METAL HALIDE, 480V, POLE MOUNTED SHOE BOX STYLE SINGLE ARM MOUNT, TYPE 4 DISTRIBUTION FLAT LENS, ALUMINUM HOUSING, DARK BRONZE COLOR	NEW 4 LIGHT FIXTURE ON A 35' LIGHT STANDARD. FINISH SHALL MATCH EXISTING
D	SPAULDING OR APPROVED EQUIVALENT	CE2-P45-H3-F-5-DB-F5/ARM-S-10T45-DB	1-400W MH	VALMONT OR APPROVE EQUIVALENT	DS210-850A350-DRILLED-AB-HH-FBC-FP/F264AL/OVER GALVANIZED STEEL POLE W/ ALUMINUM FINISH	N/A	TYPE BB	METAL HALIDE, 480V, POLE MOUNTED SHOE BOX STYLE QUAD MOUNT, TYPE 4 DISTRIBUTION FLAT LENS, ALUMINUM HOUSING, DARK BRONZE COLOR	NEW SINGLE LIGHT FIXTURE ON 35' LIGHT STANDARD. FINISH SHALL MATCH EXISITING
E	VISIONAIRE LIGHTING OR APPROVED EQUIVALENT	OWK-2-8R36-COG-60L-LED-4K-UNV-AB-BZ-SF277	60W LED UNIT	N/A	N/A	N/A	N/A	BOLLARD FINISH SHALL MATCH EXISTING DARK BRONZE COLOR. PROVIDE COLOR CHIP FOR REVIEW AND ACCEPTANCE	NEW BOLLARD LIGHT UNIT
F	EXISTING LIGHT FIXTURE	N/A	1-250W HPS	EXISTING LIGHT STANDARD	N/A	30'	TYPE BB	N/A	RELOCATE SINGLE LIGHT FIXTURES ON A 30' LIGHT STANDARD
G	COOPER LIGHTING OR APPROVE EQUIVALENT	OVZ25SW823	1-250W HPS	MILLERBERND OR APPROVED EQUIVALENT	VA8-309S-GV	30'	TYPE BB	HIGH PRESSURE SODIUM, 480V, COBRA HEAD STANDARD GRAY POLYESTER POWDER COAT FINISH WITH MSII DISTRIBUTION WITH A 30' STEEL GALVANIZED POLE WITH 8' MAST ARM	NEW STREET LIGHT COBRA HEAD FIXTURE ON 30' LIGHT STANDARD . STYLE AND FINISH SHALL MATCH EXISTING
H	GARDCO LIGHTING OR APPROVED EQUIVALENT	DF7-ST-HFL-175MH-277-BRP-F	1-175W MH	N/A	N/A	N/A	N/A	175W MH FLOOD LIGHT TILTED AT 45 DEGREES. FINISH TO BE DARK BRONZE MATCHING EXISTING FIXTURE FINISH.	NEW FLOOD LIGHT FIXTURE FOR MONUMENT SIGNS
I	GARDCO LIGHTING OR APPROVED EQUIVALENT	DF7-ST-HFL-100MH-480-BRP-F	1-100W MH	N/A	N/A	N/A	N/A	100W MH FLOOD LIGHT TILTED AT 20 DEGREES. FINISH TO BE DARK BRONZE MATCHING EXISTING FIXTURE FINISH.	NEW FLOOD LIGHT FIXTURE FOR MONUMENT SIGNS
J	GARDCO LIGHTING OR APPROVED EQUIVALENT	DF12-ST-VFL-250MH-277-BRP-F	1-250W MH	N/A	N/A	N/A	N/A	250W MH FLOOD LIGHT STATION MOUNTED TILTED AT 60 DEGREES. FINISH TO BE DARK BRONZE MATCHING EXISTING FIXTURE FINISH	NEW FLOOD LIGHT FIXTURE FOR MONUMENT SIGNS
K	GARDCO LIGHTING OR APPROVED EQUIVALENT	DF12-ST-HSL-100MH-277-BRP-F	1-100W MH	N/A	N/A	N/A	N/A	100W MH FLOOD LIGHT STATION MOUNTED TILTED AT 60 DEGREES. FINISH TO BE DARK BRONZE MATCHING EXISTING FIXTURE FINISH	NEW FLOOD LIGHT FIXTURE FOR MONUMENT SIGNS

PANEL P1

200 Amp Main Breaker, 240/480 Volt, Single Phase, 4-Wire, Fed from Utility Meter.

CKT	DESCRIPTION	BRK	V-A	AMPS	WIRE AND CONDUIT	Φ	WIRE AND CONDUIT	AMPS	V-A	BRK	DESCRIPTION	CKT
1	Existing Roadway Lighting	30	2880	6.0	2-#6 AWG Cu THHN/THWN & #8 AWG	A	2-#10 AWG Cu THHN/THWN & #10 AWG	5.4	2,592	30	Existing Roadway Lighting	2
3				6.0	THHN/THWN GROUND IN 1-1/2" PVC	B	THHN/THWN GROUND IN 1-1/2" PVC	5.4				4
5	Existing Roadway Lighting	30	1152	2.4	2-#6 AWG Cu THHN/THWN & #8 AWG	A	2-#10 AWG Cu THHN/THWN & #10 AWG	3.0	1,440	30	Existing Roadway Lighting	6
7				2.4	THHN/THWN GROUND IN 1-1/2" PVC	B	THHN/THWN GROUND IN 1-1/2" PVC	3.0				8
9	North Long Term Parking Lot	30	7680	16.0	2-#6 AWG Cu THHN/THWN & #8 AWG	A	2-#6 AWG Cu THHN/THWN & #8 AWG	16.0	7,680	30	North Long Term Parking Lot	10
11				16.0	THHN/THWN GROUND IN 1-1/2" PVC	B	THHN/THWN GROUND IN 1-1/2" PVC	16.0				12
13	North Long Term Parking Lot	30	7680	16.0	2-#6 AWG Cu THHN/THWN & #8 AWG	A	2-#6 AWG Cu THHN/THWN & #8 AWG	15.0	7,200	30	North Long Term Parking Lot	14
15				16.0	THHN/THWN GROUND IN 1-1/2" PVC	B	THHN/THWN GROUND IN 1-1/2" PVC	15.0				16
17	South Long Term Parking Lot	30	9600	20.0	2-#6 AWG Cu THHN/THWN & #8 AWG	A	2-#6 AWG Cu THHN/THWN & #8 AWG	20.0	9,600	30	South Long Term Parking Lot	18
19				20.0	THHN/THWN GROUND IN 1-1/2" PVC	B	THHN/THWN GROUND IN 1-1/2" PVC	20.0				20
21	Entrance Sign Flood Lighting	20	1296	2.7	2-#10 AWG Cu THHN/THWN & #10 AWG	A			0			22
23				2.7	THHN/THWN GROUND IN 1" PVC	B			0			24
25	Entrance Dactronix Sign	30	3600	15.0	3-#10 AWG Cu THHN/THWN in 1" PVC	A			0			26
27						B			0			28
29			0			A			0			30
	Total Connected VA and Amps		31,200	137.5								
				122.5								

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
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Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LIGHTING SCHEDULES

DESIGNED BY: C.H.
DRAWN BY: C.A.S.
CHECKED BY: C.H.
REVISIONS:

ACAD FILE: XXX.dwg
DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

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LIGHTING CABLE & CONDUIT SCHEDULE - PANEL LP

RUN	ITEM	CONDUIT		CABLE	
		TOTAL LF	SIZE (IN)	TOTAL LF	SIZE/TYPE
27	Existing Panel LP to Junction Box #6	804	(6) 1"	1120 800 960 160	(7) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2,3,5,7,9,11 Panel LP) (5) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1,4,6 Panel LP) (6) UNDERGROUND CONDUCTOR NO. 8 GROUND UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
28	Junction Box #6 to Light B44	28	1"	80 40	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
29	Light B44 to Light B43	21	1"	66 33	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
30	Light B43 to Light B42	170	1"	364 182	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
31	Light B42 to Light B41	21	1"	66 33	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
32	Light B41 to Light B40	92	1"	208 104	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
33	Light B40 to Light B39	21	1"	66 33	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
34	Light B39 to Light B38	101	1"	226 113	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
35	Light B38 to Light B37	21	1"	66 33	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
36	Junction Box #6 to Light L15	62	1"	148 74	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 3,5 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
37	Light L15 to Light L14	223	1"	470 235	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 3,5 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
38	Light L15 to Light L16	198	1"	420 210	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 3,5 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
39	Light L16 to Light L17	182	1"	388 194	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 3,5 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
40	Light L17 to Light L18	219	1"	462 231	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 3,5 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
41	Junction Box #6 to Junction Box #7	350	(2) 1"	374 187 187	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) (2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) (2) UNDERGROUND CONDUCTOR NO. 8 GROUND
42	Junction Box #7 to Light B51	35	1"	94 47	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
43	Light B51 to Light B52	16	1"	56 28	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
44	Light B52 to Light B53	43	1"	110 55	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
45	Light B53 to Light B54	15	1"	54 27	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
46	Junction Box #7 to Light B50	55	1"	134 67	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
47	Light B50 to Light B49	17	1"	58 29	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
48	Light B49 to Light B48	53	1"	130 65	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
49	Light B48 to Light B47	16	1"	56 28	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
50	Light B47 to Light B46	51	1"	126 63	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
51	Light B46 to Light B45	18	1"	60 30	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
52	Light B45 to Light B36	118	1"	260 130	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
53	Light B36 to Light B35	16	1"	56 28	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
54	Light B35 to Light B34	51	1"	126 63	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
55	Light B34 to Light B33	15	1"	54 27	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
56	Light B33 to Light B32	54	1"	132 66	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
57	Light B32 to Light B31	15	1"	54 27	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
58	Light B31 to Light B30	57	1"	138 69	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
59	Light B30 to Light B29	16	1"	56 28	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
60	Light B29 to Light B28	43	1"	110 55	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
61	Light B28 to Light B27	17	1"	58 29	(2) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 2 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
62	Junction Box #6 to Light L9	102	1"	342 114	(3) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 7,9,11 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
63	Light L9 to Light L8	257	1"	807 269	(3) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 7,9,11 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
64	Light L8 to Light L7	256	1"	804 268	(3) UNDERGROUND CONDUCTOR NO. 6 THW (CKT 7,9,11 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
65	Light B35 to Light B58	110	1"	244 122	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
66	Light B58 to Light B59	51	1"	126 63	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
67	Light B59 to Light B60	42	1"	108 54	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
68	Junction Box #5 to Light B55	186	1"	396 198	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
69	Light B55 to Light B56	37	1"	98 49	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
70	Light B56 to Light B57	62	1"	148 74	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 1 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
80	Junction Box #7 to Exit Sign #4	63	1"	150 75	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
81	Exit Sign #4 to Exit Sign #3	150	1"	324 162	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
82	Exit Sign #3 to Exit Sign #2	185	1"	394 197	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
83	Exit Sign #2 to Exit Sign #1	134	1"	292 146	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
84	Junction Box #7 to Exit Sign #5	71	1"	166 83	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
85	Exit Sign #5 to Exit Sign #6	235	1"	494 247	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
86	Junction Box #5 to Junction Box #8	525	1"	1074 537	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 6 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
87	Junction Box #8 to Junction Box #9	40	1"	104 52	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 6 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
88	Junction Box #9 to Light F11	525	1"	1074 537	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 6 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
89	Light F11 to Light F12	11	1"	46 23	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
90	Exit Sign #3 to Light F9	8	1"	40 20	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
91	Exit Sign #3 to Light F10	8	1"	40 20	(2) UNDERGROUND CONDUCTOR NO. 8 THW (CKT 4 Panel LP) UNDERGROUND CONDUCTOR NO. 8 GROUND
92	Exit Plaza to Light L6	202	1"	214	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
93	Exit Plaza to Light L12	813	1"	825	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
94	Light L6 to Junction Box #10	306	1"	318	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
95	Light L12 to Junction Box #11	180	1"	192	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
96	Junction Box #10 to Junction Box #12	398	1"	410	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
97	Junction Box #11 to Junction Box #12	248	1"	260	UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
98	Exit Plaza to Junction #13	616	(2) 2"	648 324 324	(2) UNDERGROUND CONDUCTOR NO. 2 THW (CKT FROM EXIT PLAZA) UNDERGROUND CONDUCTOR NO. 8 GROUND UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
99	Junction Box #13 to Junction Box #14	1124	(2) 2"	1156	(2) UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE) 2-#9841 BELDEN, 2-#9842 BELDEN, 4-#8771 BELDEN
100	Junction Box #14 to Junction Box #15	810	(2) 2"	834	(2) UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE) 1-#9841 BELDEN, 2-#9842 BELDEN, 4-#8771 BELDEN, 1-#9455 BELDEN
101	Junction Box #15 to Short Term Parking Gate	146	(2) 2"	175	(2) UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)
102	Junction Box #16 to Long Term Parking Gate	350	(2) 2"	374	(2) UNDERGROUND CONDUCTOR NO. 10 (PULL WIRE)

1-#9841 BELDEN,
1-#9842 BELDEN,
8-#8771 BELDEN

NOTE:

1. RUN 87 SHALL BE BORED UNDER EXISTING ROADWAY.

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-1-11

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LIGHTING SCHEDULES

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERING
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9685

SHEET NO.
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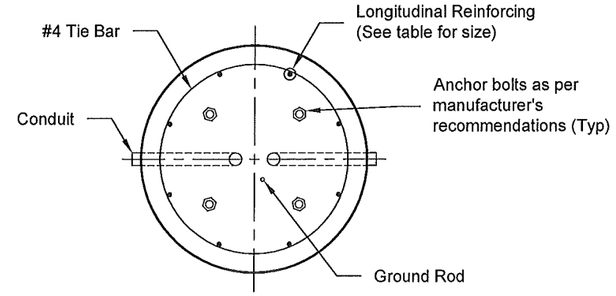
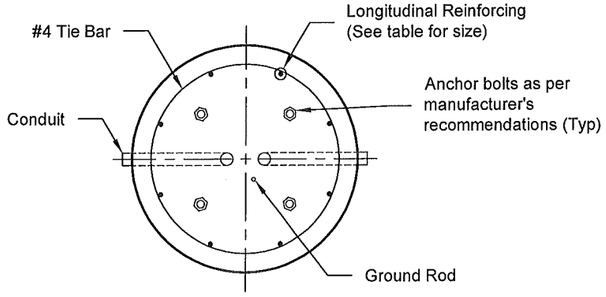
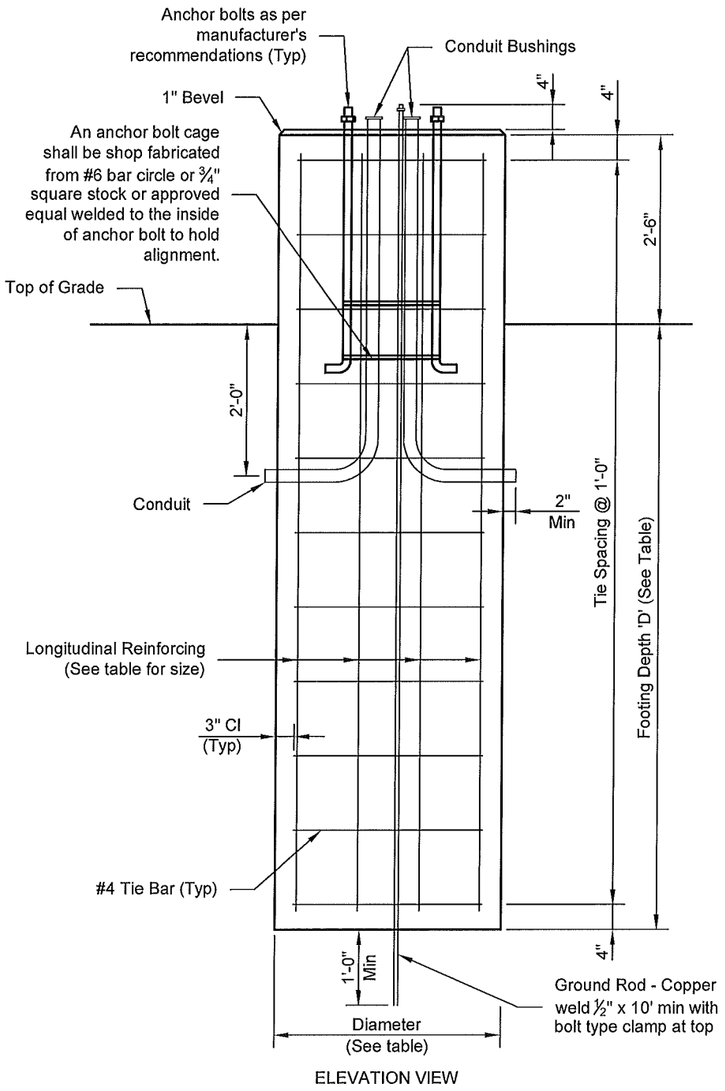


PLAN VIEW

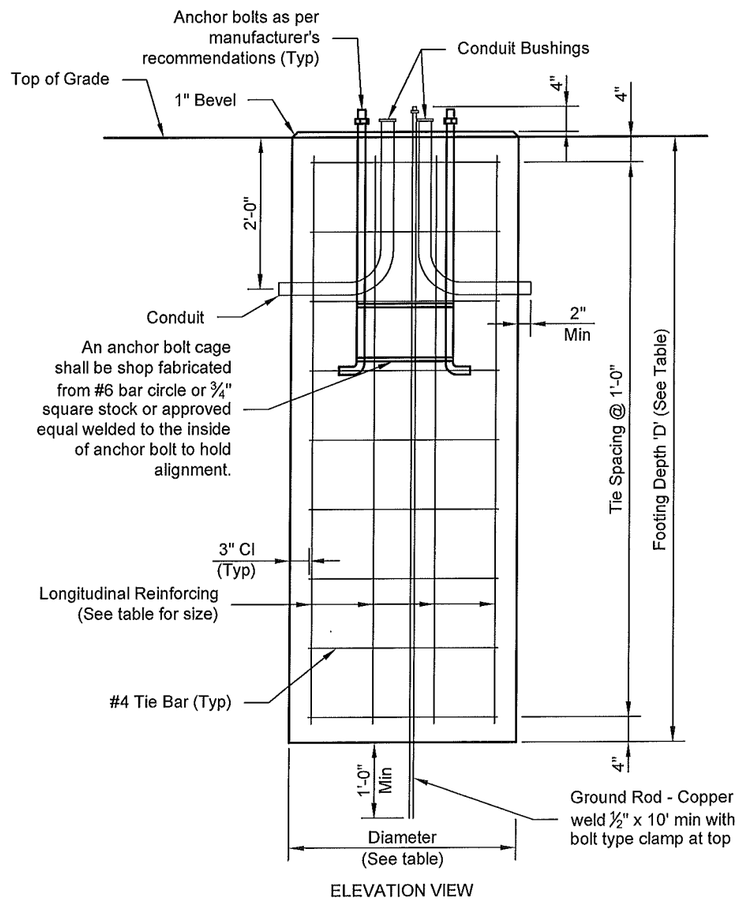


PLAN VIEW



ELEVATION VIEW

LIGHT STANDARD CONCRETE FOUNDATION (TYPE A-A)



ELEVATION VIEW

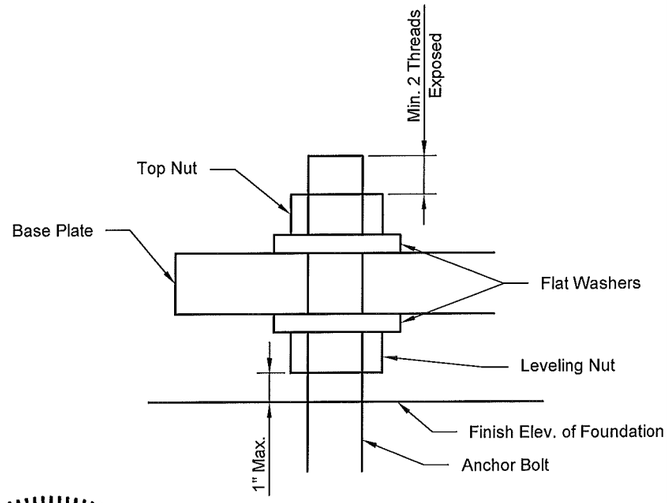
LIGHT STANDARD CONCRETE FOUNDATION (TYPE B-B)

LIGHT STANDARD FOUNDATION SELECTION TABLE

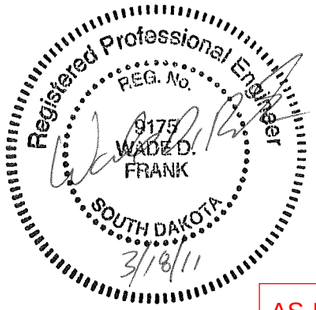
Description	Reinforcing Bars Required	Footing Depth "D" 24" Diameter	Reinforcing Bars Required	Footing Depth "D" 36" Diameter
Light Standard 0'-35' Mounting Height	8- #5	9'	8- #5	8'

NOTES FOR LIGHT STANDARD FOUNDATIONS:

1. For Light Standards, the foundation diameter shall be the largest of the following scenarios:
   -Anchor bolt circle diameter plus 12"
   -Light base plus 6"
   -24"
2. Foundations shall be constructed in accordance with City of Sioux Falls Standard Specifications for Roadway Lighting, Section 635B.
3. All reinforcing steel shall conform to the requirements of AASHTO M 31 Grade 60.
4. Concrete shall have a 28 day compressive strength of 3,000 psi.
5. The contractor may use temporary casing to maintain the opening prior to placement of concrete. The casing shall be removed prior to curing of the concrete. If casing is used, it shall be of sufficient strength to withstand handling and installation procedures. The contractor shall submit a casing material proposal to the engineer for review two weeks prior to ordering casing material. All costs associated with the temporary casing shall be included in the unit price bid for "CONCRETE FOOTINGS". Permanent casing of the foundation shall not be used.



ANCHOR BOLT DETAIL



AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LIGHT STANDARD CONCRETE FOUNDATION
DESIGNED BY: CAM
DRAWN BY: CAM
CHECKED BY: DJK
REVISIONS
ACAD FILE: 55510108 Lgnt Foundation dwg
DATE: 3/17/2011
BY: DATE:
BY: DATE:

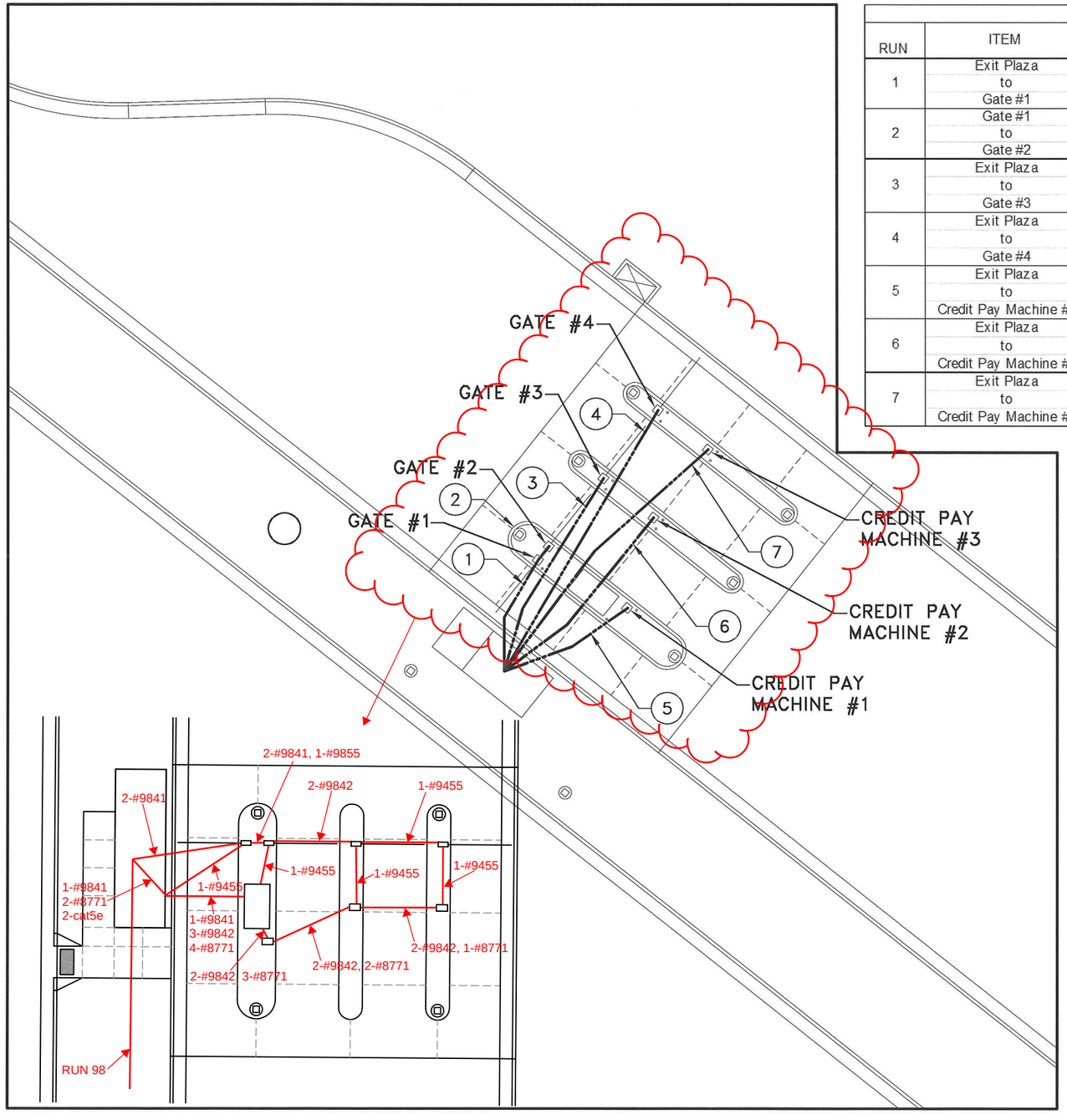
SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
324 N. Sycamore Ave, Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9885

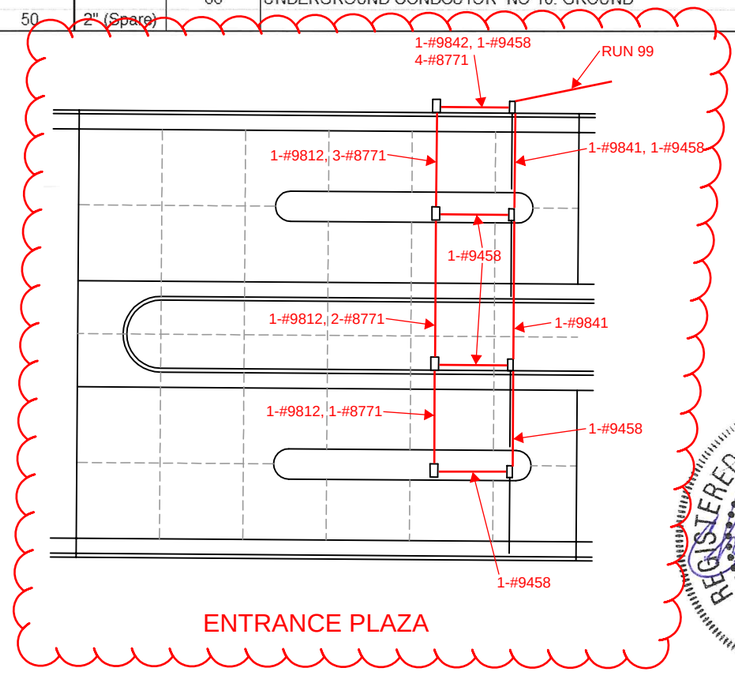
SHEET NO
N14
OF
N17

LIGHTING CABLE & CONDUIT SCHEDULE - EXIT PLAZA

RUN	ITEM	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	CABLE RUN TOTAL LF	CABLE RUN SIZE/TYPE
1	Exit Plaza	22	3/4"	152	(4) UNDERGROUND CONDUCTORS NO. 10 THW
	to			76	(2) UNDERGROUND CONDCUTOR NO 10. GROUND
	Gate #1	22	2" (Spare)		
2	Gate #1	5	3/4"	34	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			17	UNDERGROUND CONDCUTOR NO 10. GROUND
	Gate #2	5	2" (Spare)		
3	Exit Plaza	38	3/4"	108	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			54	UNDERGROUND CONDCUTOR NO 10. GROUND
	Gate #3	38	2" (Spare)		
4	Exit Plaza	51	3/4"	134	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			67	UNDERGROUND CONDCUTOR NO 10. GROUND
	Gate #4	51	2" (Spare)		
5	Exit Plaza	24	3/4"	80	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			40	UNDERGROUND CONDCUTOR NO 10. GROUND
	Credit Pay Machine #1	24	2" (Spare)		
6	Exit Plaza	37	3/4"	106	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			53	UNDERGROUND CONDCUTOR NO 10. GROUND
	Credit Pay Machine #2	37	2" (Spare)		
7	Exit Plaza	50	3/4"	132	(2) UNDERGROUND CONDUCTORS NO. 10 THW
	to			66	UNDERGROUND CONDCUTOR NO 10. GROUND
	Credit Pay Machine #3	50	2" (Spare)		



EXIT PLAZA



ENTRANCE PLAZA

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-24-11

SCALE: 1"=20'
0 10 20 FT

AS-BUILT DRAWINGS
JANUARY 2013

Kadrmas Lee & Jackson
Engineers Surveyors Planners

GENERAL NOTES:

1. COORDINATE WITH STANDARD PARKING ON PROVIDING POWER CONNECTIONS FOR THE PROPOSED GATES AND CREDIT PAY MACHINES.

2. CONTRACTOR SHALL PROVIDE CIRCUIT BREAKERS AS NEEDED FOR PROPOSED GATES AND PAY MACHINES.

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PROPOSED EXIT PLAZA

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/31/2011
REVISIONS: ADDENDUM #1 BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

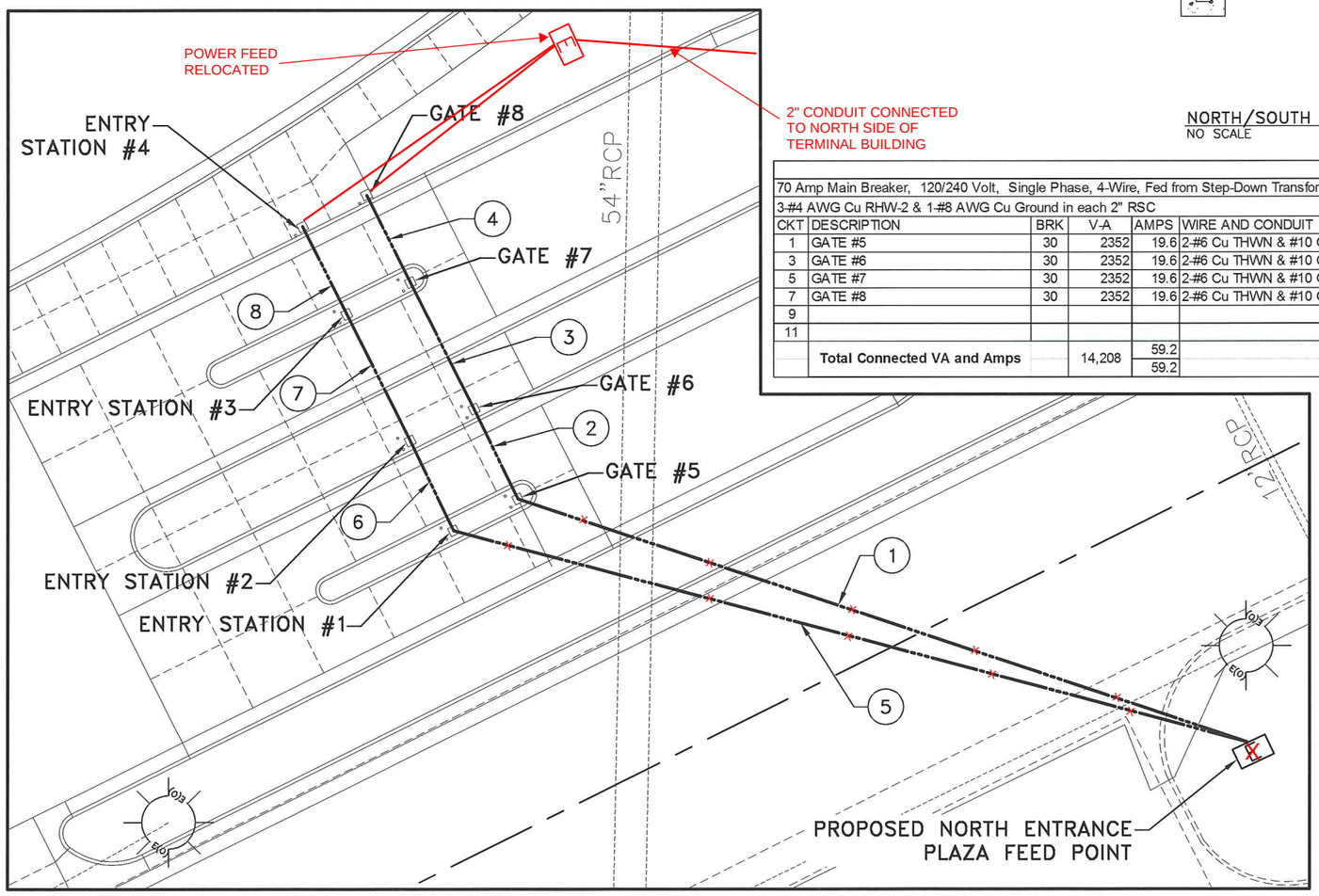
SHEET NO.
N15
OF
N17

AS-BUILT DRAWINGS
JANUARY 2013

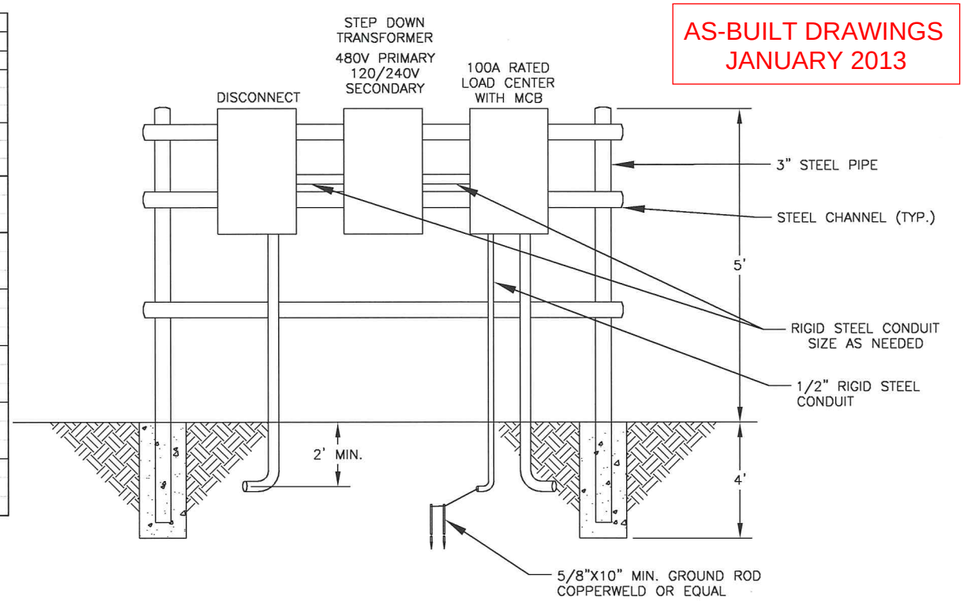
SCALE: 1"=20'
0 10 20 FT

LIGHTING CABLE & CONDUIT SCHEDULE - NORTH ENTRANCE PLAZA

RUN	ITEM	CONDUIT RUN		CABLE RUN	
		TOTAL LF	SIZE (IN)	TOTAL LF	SIZE/TYPE
1	Entrance Plaza Feed Point to Gate #5	105	1-1/2"	968 484	(8) UNDERGROUND CONDUCTORS NO. 6 THW (4) UNDERGROUND CONDCUTOR NO 10. GROUND
2	Gate #5 to Gate #6	15	1-1/2"	162 81	(6) UNDERGROUND CONDUCTORS NO. 6 THW (3) UNDERGROUND CONDCUTOR NO 10. GROUND
3	Gate #6 to Gate #7	20	1-1/2"	128 64	(4) UNDERGROUND CONDUCTORS NO. 6 THW (2) UNDERGROUND CONDCUTOR NO 10. GROUND
4	Gate #7 to Gate #8	15	1-1/2"	54 27	(2) UNDERGROUND CONDUCTORS NO. 6 THW UNDERGROUND CONDCUTOR NO 10. GROUND
5	Entrance Plaza Feed Point to Entry Station #1	113	1-1/2"	1032 516	(8) UNDERGROUND CONDUCTORS NO. 6 THW (4) UNDERGROUND CONDCUTOR NO 10. GROUND
6	Entry Station #1 to Entry station #2	15	1-1/2"	162 81	(6) UNDERGROUND CONDUCTORS NO. 6 THW (3) UNDERGROUND CONDCUTOR NO 10. GROUND
7	Entry Station #2 to Entry Station #3	20	1-1/2"	128 64	(4) UNDERGROUND CONDUCTORS NO. 6 THW (2) UNDERGROUND CONDCUTOR NO 10. GROUND
8	Entry Station #3 to Entry Station #4	15	1-1/2"	54 27	(2) UNDERGROUND CONDUCTORS NO. 6 THW UNDERGROUND CONDCUTOR NO 10. GROUND



NORTH ENTRANCE PLAZA



NORTH/SOUTH MOUNTING STRUCTURE DETAIL
NO SCALE

NORTH ENTRANCE PANEL SCHEDULE

70 Amp Main Breaker, 120/240 Volt, Single Phase, 4-Wire, Fed from Step-Down Transformer
3-#4 AWG Cu RHW-2 & 1-#8 AWG Cu Ground in each 2" RSC

CKT	DESCRIPTION	BRK	V-A	AMPS	WIRE AND CONDUIT	Φ	WIRE AND CONDUIT	AMPS	V-A	BRK	DESCRIPTION	CKT
1	GATE #5	30	2352	19.6	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	A	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #1	2
3	GATE #6	30	2352	19.6	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	B	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #2	4
5	GATE #7	30	2352	19.6	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	A	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #3	6
7	GATE #8	30	2352	19.6	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	B	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #4	8
9						A						10
11						B						12
	Total Connected VA and Amps		14,208	59.2 59.2								

GENERAL NOTES:

1. NORTH ENTRANCE PLAZA FEED POINT SHALL BE FEED FROM EXISTING 480V TRANSFORMER LOCATED INSIDE THE TERMINAL IN THE BAGGAGE CLAIM ROOM.

2. CONTRACTOR SHALL PROVIDE A FUSED DISCONNECT ADJACENT TO THE EXISTING 480V TRANSFORMER SIZED AS REQUIRED BY NEC. THE UNDERGROUND FEEDER SHALL BE ROUTED FROM THE TERMINAL BUILDING TO THE NORTH ENTRANCE PLAZA FEED POINT LOCATION. THE CONTRACTOR SHALL PROVIDE A 15KVA 120/240V STEP-DOWN TRANSFORMER ALONG WITH THE NECESSARY DISCONNECTS, 12 POSITION LOAD CENTER, MOUNTING STRUCTURE, GROUNDING AND BONDING PER CODE.

3. MOUNTING STRUCTURE SHALL CONSIST OF 2 CONCRETE ENCASED STEEL POSTS WITH UNIT STRUT CROSS BRACING. LOAD CENTER, DISCONNECT, STEP-DOWN TRANSFORMER SHALL BE MOUNTED ON THE PROPOSED STRUCTURE.

4. UNDERGROUND FEEDER FROM THE TERMINAL TO THE NORTH ENTRANCE SHALL CONSIST OF 3-#2 AWG CU TYPE THWN AND A #8 AWG CU GROUND IN A 1-1/2" PVC CONDUIT.

5. MOUNTING STRUCTURE DETAIL SHALL BE UTILIZED FOR BOTH THE NORTH AND SOUTH ENTRANCE PLAZA. REFER TO PLAN NOTES FOR ADDITIONAL REQUIREMENTS.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-24-11

PROPOSED LEGEND

79 CABLE RUN NUMBER
(REFER TO CABLE CONDUIT SCHEDULE)

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

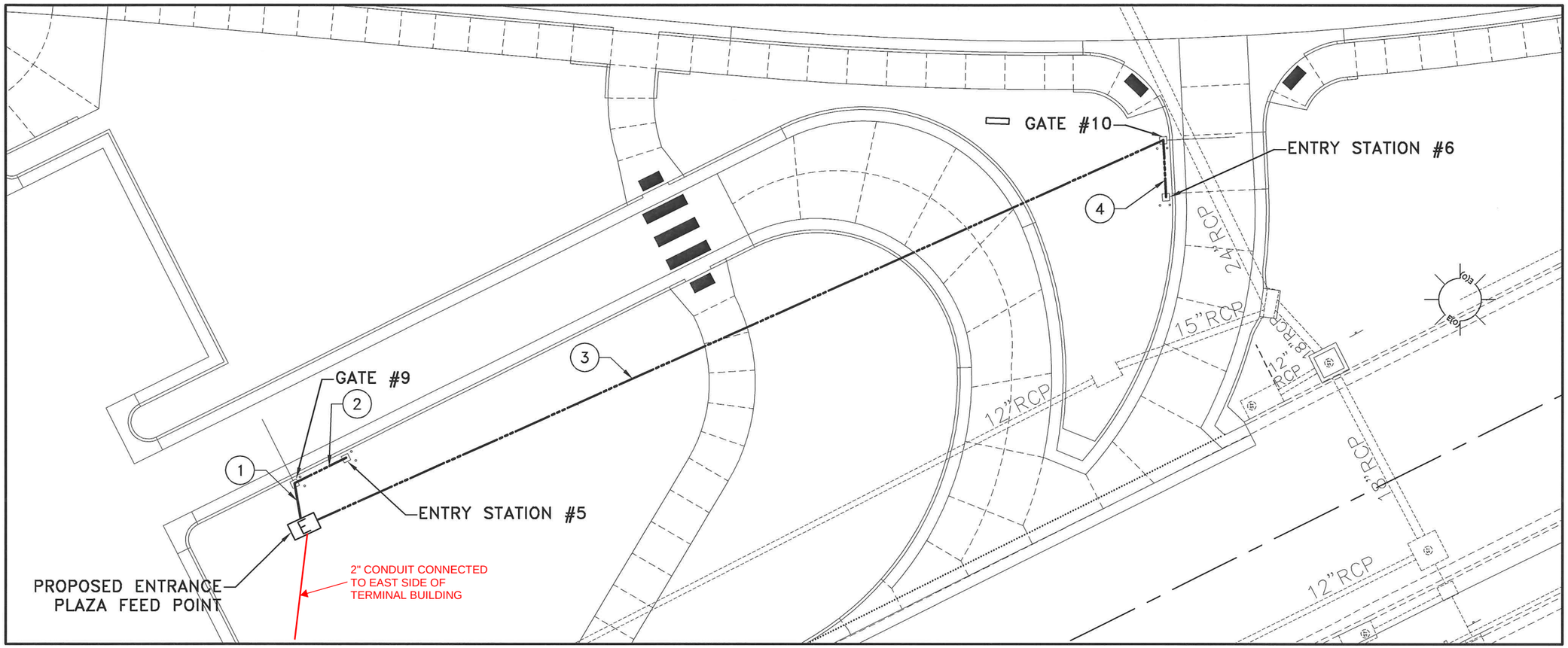
NORTH ENTRANCE LAYOUT

DESIGNED BY: C.H.K. ACAD FILE: YXX.dwg
DRAWN BY: C.A.S. DATE: 3/11/2011
CHECKED BY: C.H.K. ADDENDUM #1 DATE:
REVISIONS - ADDENDUM #1 BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9685

SHEET NO.
N16
OF
N17



SOUTH ENTRANCE PLAZA

LIGHTING CABLE & CONDUIT SCHEDULE - SOUTH ENTRANCE PLAZA

RUN	ITEM	CONDUIT RUN TOTAL LF	CONDUIT RUN SIZE (IN)	CABLE RUN TOTAL LF	CABLE RUN SIZE/TYPE
1	Entrance Plaza Feed Point to Gate #9	15	1-1/2"	124 62	(4) UNDERGROUND CONDUCTORS NO. 10 THW (2) UNDERGROUND CONDCUTOR NO 10. GROUND
2	Gate #9 to Entry Station #5	10	1-1/2"	44 22	(2) UNDERGROUND CONDUCTORS NO. 10 THW UNDERGROUND CONDCUTOR NO 10. GROUND
3	Entrance Plaza Feed Point to Gate #10	165	1-1/2"	724 362	(4) UNDERGROUND CONDUCTORS NO. 6 THW (2) UNDERGROUND CONDCUTOR NO 10. GROUND
4	Gate #10 to Entry Station #6	10	1-1/2"	44 22	(2) UNDERGROUND CONDUCTORS NO. 6 THW UNDERGROUND CONDCUTOR NO 10. GROUND

SOUTH ENTRANCE PANEL SCHEDULE

50 Amp Main Breaker, 120/240 Volt, Single Phase, 4-Wire, Fed from Step-Down Transformer

3-#4 AWG Cu RHW-2 & 1-#8 AWG Cu Ground in each 2" RSC

CKT	DESCRIPTION	BRK	V-A	AMPS	WIRE AND CONDUIT	Φ	WIRE AND CONDUIT	AMPS	V-A	BRK	DESCRIPTION	CKT
1	GATE #9	30	2352	19.6	2-#10 Cu THWN & #10 GND in 1-1/2" PVC	A	2-#10 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #5	2
3	GATE #10	30	2352	19.6	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	B	2-#6 Cu THWN & #10 GND in 1-1/2" PVC	10.0	1,200	20	ENTRY STATION #6	4
5						A						6
7						B						8
9						A						10
11						B						12
	Total Connected VA and Amps		7,104	29.6 29.6								

GENERAL NOTES:

1. SOUTH ENTRANCE PLAZA FEED POINT SHALL BE FEED FROM EXISTING 480V TRANSFORMER LOCATED INSIDE THE TERMINAL IN THE BAGGAGE CLAIM ROOM.

2. CONTRACTOR SHALL PROVIDE A FUSED DISCONNECT ADJACENT TO THE EXISTING 480V TRANSFORMER SIZED AS REQUIRED BY NEC. THE UNDERGROUND FEEDER SHALL BE ROUTED FROM THE TERMINAL BUILDING TO THE SOUTH ENTRANCE PLAZA FEED POINT LOCATION. THE CONTRACTOR SHALL PROVIDE A 10KVA 120/240V STEP-DOWN TRANSFORMER ALONG WITH THE NECESSARY DISCONNECTS, 12 POSITION LOAD CENTER, MOUNTING STRUCTURE, GROUNDING AND BONDING PER CODE.

3. MOUNTING STRUCTURE SHALL CONSIST OF 2 CONCRETE ENCASED STEEL POSTS WITH UNIT STRUT CROSS BRACING. LOAD CENTER, DISCONNECT, STEP-DOWN TRANSFORMER SHALL BE MOUNTED ON THE PROPOSED STRUCTURE.

4. UNDERGROUND FEEDER FROM THE TEMRINAL TO THE SOUTH ENTRANCE SHALL CONSIST OF 3-#4 AWG CU TYPE THWN AND A #8 AWG CU GROUND IN A 1-1/2" PVC CONDUIT.

5. REFER TO SHEET N16 FOR FEED POINT DETAIL.

REGISTERED PROFESSIONAL ENGINEER
REG. NO. 9632
CHRISTOPHER HORNER
SOUTH DAKOTA
3-24-11

AS-BUILT DRAWINGS
JANUARY 2013

PROPOSED LEGEND

79 — CABLE RUN NUMBER
(REFER TO CABLE CONDUIT SCHEDULE)

Kadrmas Lee & Jackson
Engineers Surveyors Planners

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

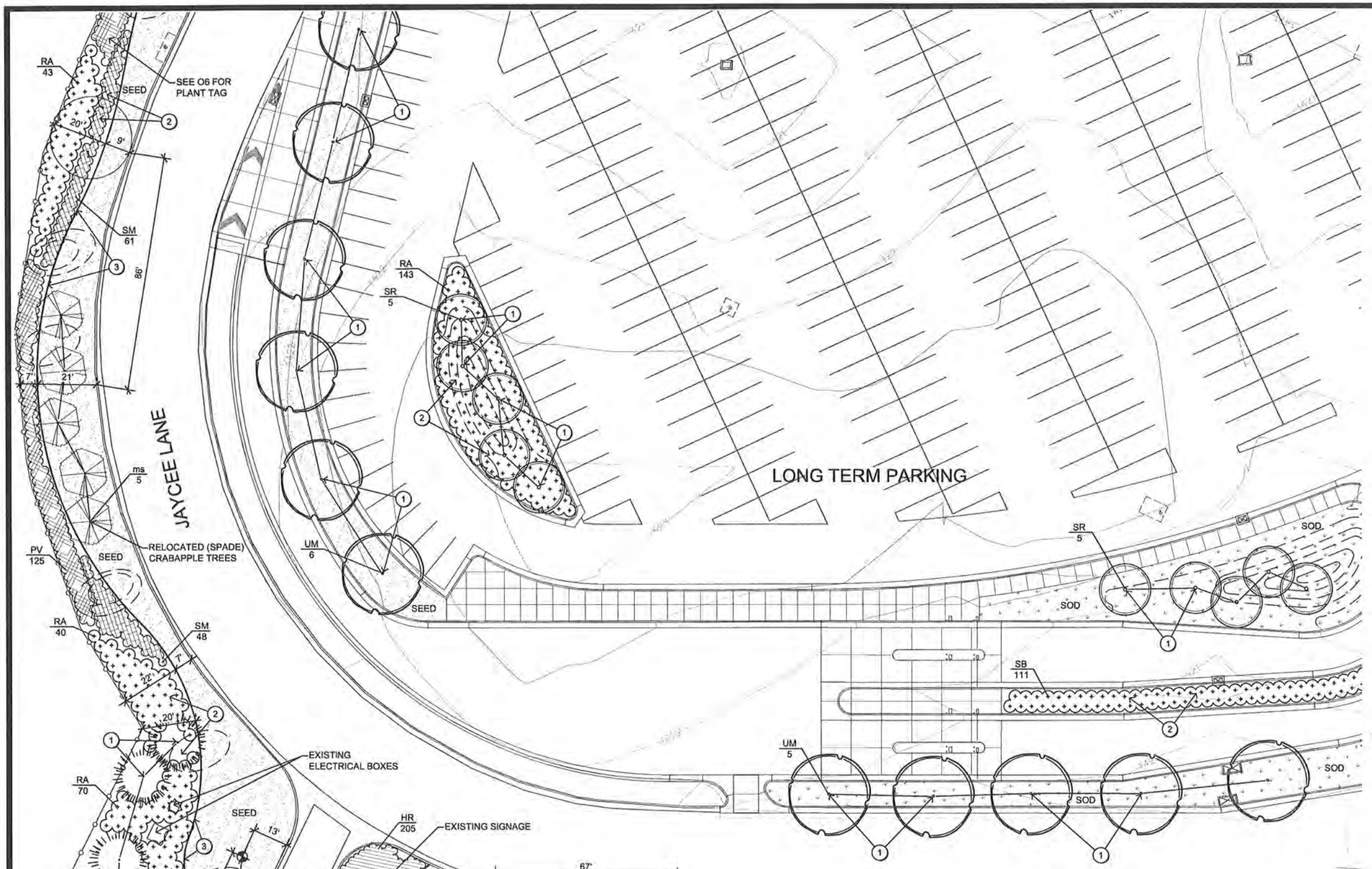
SOUTH ENTRANCE PLAZA LAYOUT

DESIGNED BY: C.H.
DRAWN BY: C.A.S. ACAD FILE: XXX.dwg
CHECKED BY: C.H. DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9685

SHEET NO.
N17
OF
N17



SCALE: 1"=40'

0 20 40 FT

GENERAL NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL PUBLIC AND PRIVATE UTILITIES WHICH LIE WITHIN THE CONSTRUCTION AREA PRIOR TO ANY CONSTRUCTION. NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES. SOUTH DAKOTA ONE CALL NOTIFICATION CENTER: 1-800-781-7474.

ALL PLANT AND TREE LOCATIONS SHALL BE VERIFIED BY THE LANDSCAPE ARCHITECT ON SITE PRIOR TO INSTALLATION. SHRUBS ARE NOT TO BE LOCATED CLOSER THAN 2'-6" TO CURB OR WALKS. PERENNIALS / GRASSES ARE NOT TO LOCATED CLOSER THAN 1'-6" TO CURB OR WALKS.

THE CONTRACTOR SHALL CONSTRUCT ALL ITEMS WITHIN THIS CONTRACT IN ACCORDANCE WITH ALL STATE AND LOCAL CODES AND REGULATIONS. CONTRACTOR TO COORDINATE ALL WORK WITHIN THE PUBLIC RIGHT OF WAY OR STREETS WITH THE APPROPRIATE JURISDICTIONS.

THE CONTRACTOR SHALL REPORT TO THE OWNER ANY DAMAGE TO OWNER'S PROPERTY AND UTILITIES PRIOR TO REPAIR.

ALL WORK SHALL BE IN ACCORDANCE WITH OSHA CODES AND STANDARDS. NOTHING INDICATED ON THESE DRAWINGS SHALL RELIEVE THE CONTRACTOR FROM COMPLYING WITH ANY APPROPRIATE SAFETY REGULATIONS.

ALL WEED BARRIER FABRIC SHALL BE STAPLED AT 12" ALONG EDGES AND SEAMS.

PLANT QUANTITIES IN PLANT SCHEDULE ARE PROVIDED FOR CONVENIENCE ONLY AND ARE NOT GUARANTEED. QUANTITIES ON PLAN WILL PREVAIL IF DISCREPANCIES OCCUR.

HYDROMULCH ALL SEEDED AREAS AS SPECIFIED. STRAW MULCH IS NOT AN ACCEPTABLE ALTERNATIVE.

SEE PLANTING DETAILS, SHEET O20.

SEE THE FOLLOWING SPECIFICATION SECTIONS FOR ADDITIONAL REQUIREMENTS:

328400 PLANTING IRRIGATION
329200 TURF AND GRASSES
329300 PLANTS

KILL EXISTING TURF WITH NON-SELECTIVE HERBICIDE IN AREAS WHERE GRADE IS UNCHANGED. TILL AND PREPARE ALL LAWN AND LANDSCAPE AREAS AS SPECIFIED.

APPROVE BERM CONSTRUCTION AND FINE GRADING WITH LANDSCAPE ARCHITECT PRIOR TO PLANTING.

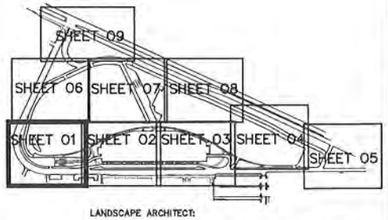
KEYNOTES:

1. B&B TREE- TYP. 1/O20.
2. WEED BARRIER FABRIC AND ORGANIC LANDSCAPE MULCH, AS SPECIFIED.
3. LANDSCAPE EDGING, AS SPECIFIED.

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PLANTING PLAN

DESIGNED BY: CMK
DRAWN BY: CMK
CHECKED BY: CMK
REVISIONS:

ACAD FILE: 100415ff O-planting
DATE: 03/11/2011
BY: DATE
BY: DATE

SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9695

SHEET NO.
01
OF
021

SCALE: 1"=40'
0 20 40 FT

KEYNOTES:

1. B&B TREE- TYP. 1/O20.
2. WEED BARRIER FABRIC AND ORGANIC LANDSCAPE MULCH, AS SPECIFIED.
3. LANDSCAPE EDGING, AS SPECIFIED.

SHORT TERM PARKING

JAYCEE LANE

EXISTING LANDSCAPE TO REMAIN

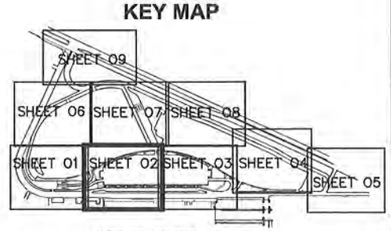
EXISTING LANDSCAPE TO REMAIN

EXISTING LANDSCAPE TO REMAIN

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PLANTING PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:

ACAD FILE: 10415F D-planting
DATE: 03/17/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph. 605.332.9685

SHEET NO.
02
OF
021

LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

SCALE: 1"=40'
0 20 40 FT

KEYNOTES:

1. B&B TREE- TYP. 1/O20.
2. WEED BARRIER FABRIC AND ORGANIC LANDSCAPE MULCH, AS SPECIFIED.
3. LANDSCAPE EDGING, AS SPECIFIED.

LONG TERM PARKING

SHORT TERM PARKING

JAYCEE LANE

SEE O2 FOR PLANT TAG

GT 10 · HS 116 · HS 78 · HS 83 · HS 63 · HS 27 · GT 2 · HS 201 · SB 86 · HS 22 · PN 5 · GT 1 · CA 40 · GT 2 · CA 39 · GT 2 · GT 2 · GT 2 · CA 197 · CA 96 · TM 12 · HA 20 · HH 36 · HH 48 · HH 36 · HA 35 · HR 25 · TM 12 · TM 8 · CA 22

R35' · R26' · R16' · 10' · 11' · 12' · 37' · 99' · 10' · 10' · 12' · 12'

SOD

SEE QUARTZITE EDGING DETAIL 3/O20.

STEEL EDGING, AS SPECIFIED

EXISTING TREES TO REMAIN.

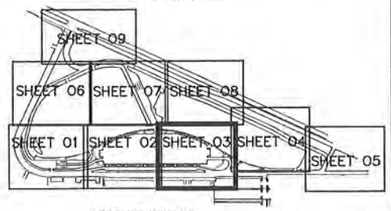
ROCK MULCH PLANT BED UNDER YEWS

ROCK MULCH PLANT BED UNDER YEWS

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PLANTING PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:

ACAD FILE: 100415 O-planting
DATE: 03/11/2011

BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph. 605.332.9685

SHEET NO.
O3
OF
O21

SCALE: 1"=40'
0 20 40 FT

KEYNOTES:

1. B&B TREE- TYP. 1/O20.
2. WEED BARRIER FABRIC AND ORGANIC LANDSCAPE MULCH, AS SPECIFIED.
3. LANDSCAPE EDGING, AS SPECIFIED.

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

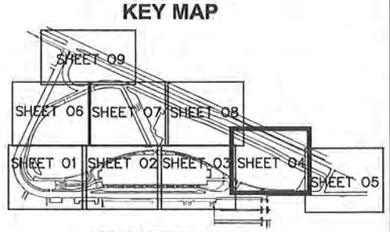
PLANTING PLAN

DESIGNED BY: CMK
DRAWN BY: CMK
CHECKED BY: CMK
ACAD FILE: 10415F D-planting
DATE: 03/11/2011
REVISIONS: BY: DATE: BY: DATE:

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

KEY MAP



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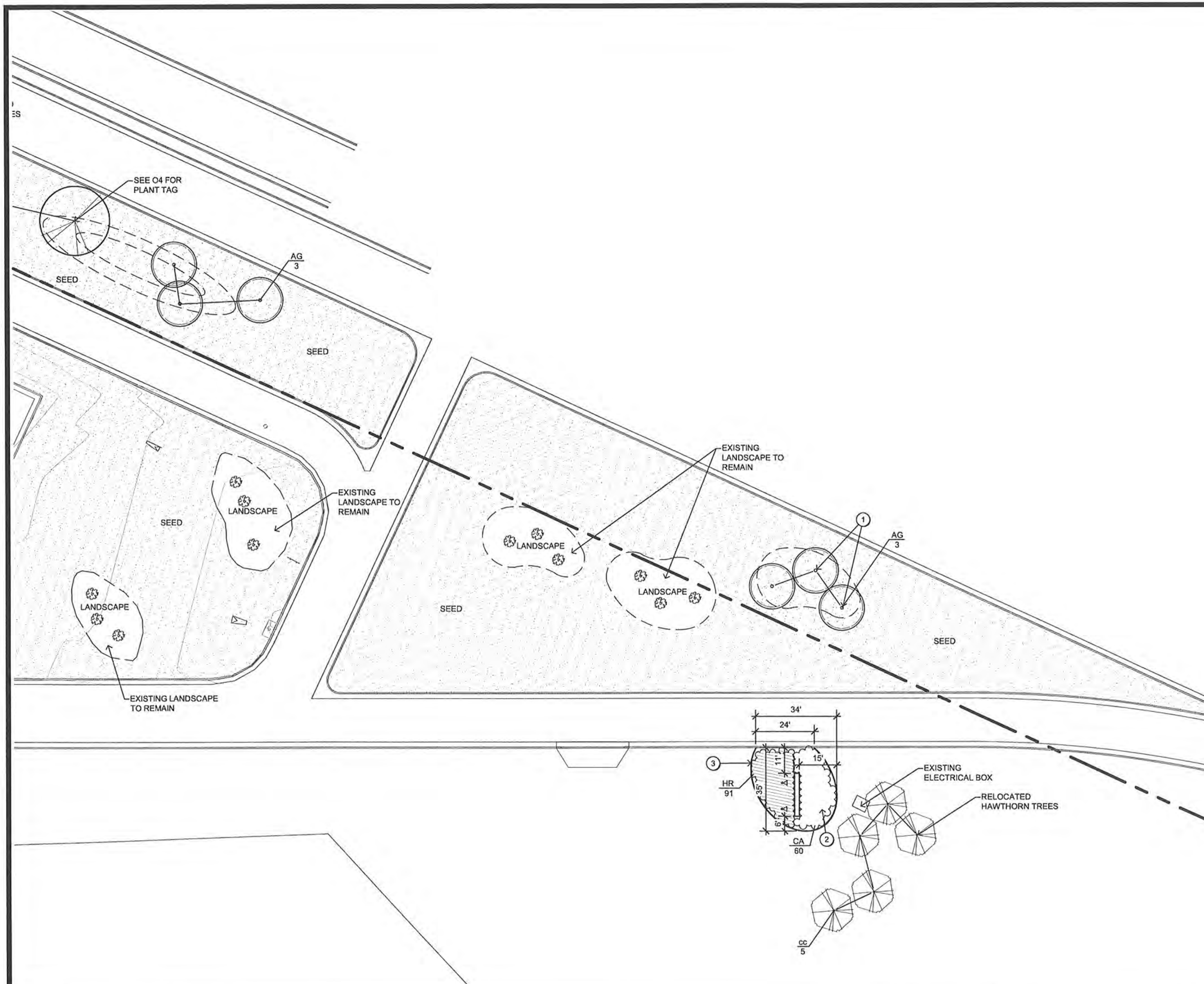
SHEET NO.
04
OF
021



SCALE: 1"=40'
0 20 40 FT

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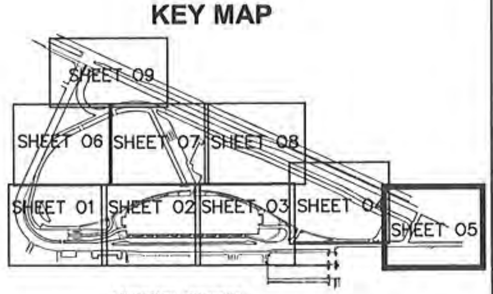
AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3·11·11

KEY MAP



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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PLANTING PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
ACAD FILE: 10041SF O-planting
DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

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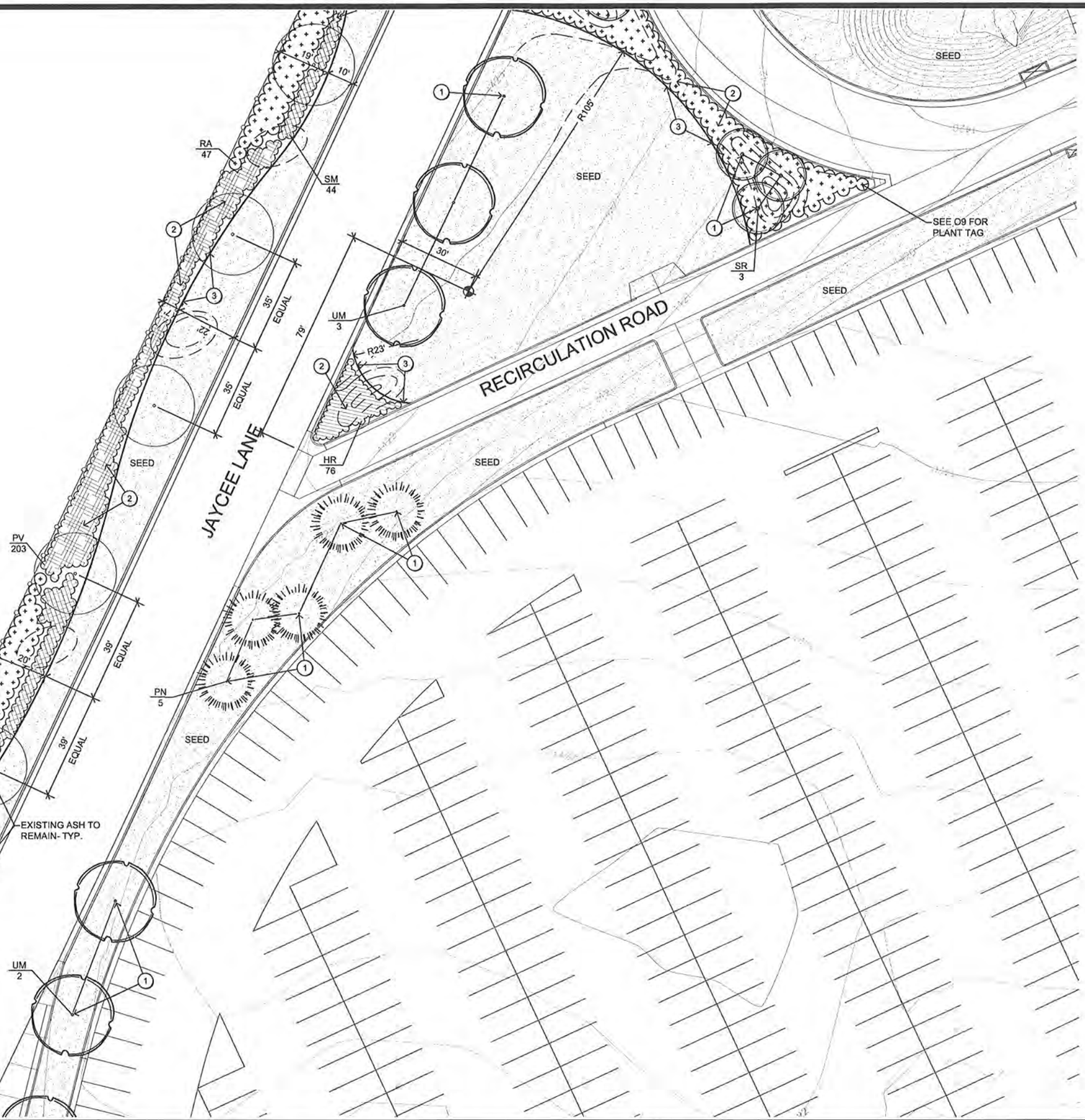
SHEET NO.
O5
OF
O21


SEED
SCALE: 1"=40'
0 20 40 FT
KEYNOTES:
1. B&B TREE- TYP. 1/O20.
2. WEED BARRIER FABRIC AND ORGANIC LANDSCAPE MULCH, AS SPECIFIED.
3. LANDSCAPE EDGING, AS SPECIFIED.
RECIRCULATION ROAD
JAYCEE LANE
R105'
R23'
30'
SEE O9 FOR PLANT TAG
RA 47
SM 44
UM 3
SR 3
HR 76
PV 203
PN 5
SM 60
RA 48
PV 164
UM 2
35' EQUAL
39' EQUAL
79'
EXISTING ASH TO REMAIN- TYP.
AS-BUILT DRAWINGS
JANUARY 2013
REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
KEY MAP
SHEET 01
SHEET 02
SHEET 03
SHEET 04
SHEET 05
SHEET 06
SHEET 07
SHEET 08
SHEET 09
LANDSCAPE ARCHITECT:
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SIOUX FALLS, SOUTH DAKOTA
PLANTING PLAN
DESIGNED BY: CMK
DRAWN BY: CMK
CHECKED BY: CMK
REVISIONS:
ACAD FILE: 100415F O-planting
DATE: 09/21/2011
BY: DATE:
BY: DATE:
FSD
SIOUX FALLS REGIONAL AIRPORT
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SHEET NO.
06
OF
021

SCALE: 1"=40'
0 20 40 FT

KEYNOTES:

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MINNESOTA AVENUE
RECIRCULATION ROAD
EXIT PLAZA
RELOCATED MAPLE TREES
RELOCATED LILAC TREES
SEE CIVIL PLANS FOR EROSION CONTROL BLANKET
SEED
HR 43
MC 3
PN 3
CA 45
HR 38
MC 1
af 3
sr 6
JA
R17
35'
12'

AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

KEY MAP

SHEET 09
SHEET 06 SHEET 07 SHEET 08
SHEET 01 SHEET 02 SHEET 03 SHEET 04 SHEET 05

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PLANTING PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
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ACAD FILE: 10041SF G-planting
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BY: DATE:
BY: DATE:

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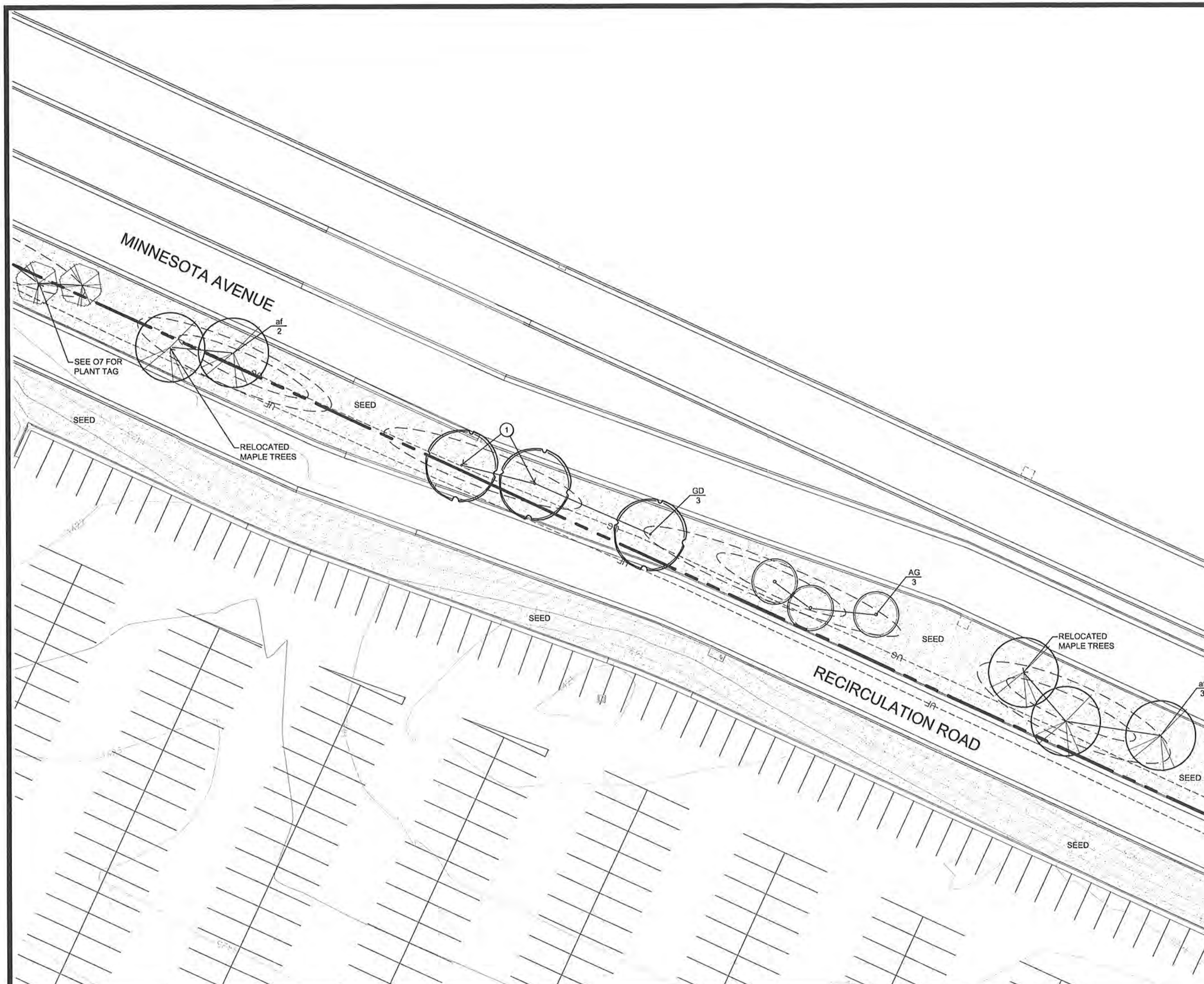

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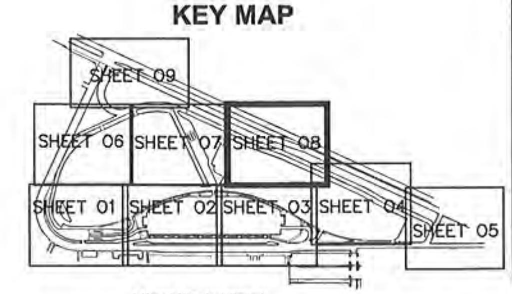
AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP



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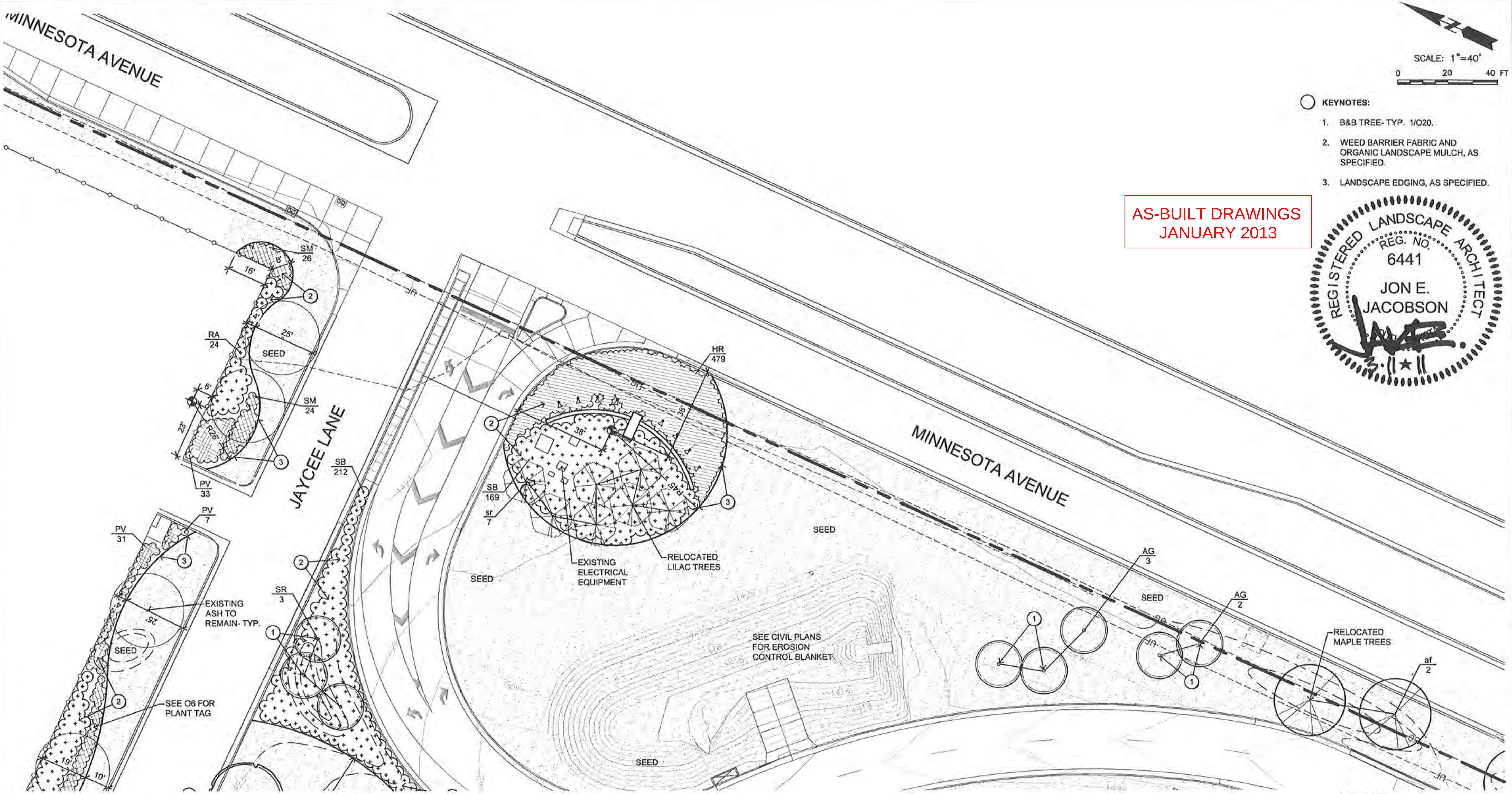
SHEET NO.
O8
OF
O21



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AS-BUILT DRAWINGS
JANUARY 2013

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3.11.11

KEY MAP

SHEET 09
SHEET 06 | SHEET 07 | SHEET 08
SHEET 01 | SHEET 02 | SHEET 03 | SHEET 04 | SHEET 05

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PLANTING PLAN

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.

SHEET NO.
09
OF
O21

TREE RELOCATION NOTES:

RELOCATE EXISTING ORNAMENTAL TREES - WORK MUST BE COMPLETE PRIOR TO MAY 1, 2011. SEE CIVIL DEMOLITION SHEETS FOR EXISTING TREE LOCATIONS.

TREES RELOCATED TO THE BOULEVARD ALONG MINNESOTA AVENUE MAY BE INSTALLED PRIOR TO BERM CONSTRUCTION. WHERE THIS OCCURS PLANT RELOCATED TREES ±18" (AS DIRECTED BY THE LANDSCAPE ARCHITECT) HIGHER THAN EXISTING GRADE IN BOULEVARD WITH BERMS TO BE CONSTRUCTED AROUND THE RELOCATED TREES.

PLANT SCHEDULE: EXISTING TREE RELOCATIONS

KEY	QTY		SIZE	NOTES
CANOPY TREES				
af	16	ACER FREEMANNII 'JEFFERSRED' AUTUMN BLAZE MAPLE	±3" CAL	
ORNAMENTAL TREES				
cc	5	CRATEAEGUS CRUS-GALLI VAR. INERMIS THORNLESS COCKSPUR HAWTHORN	±3" CAL	
ms	10	MALUS, SPP. CRABAPPLE	±3" CAL	
sr	13	SYRINGA RETICULATA JAPANESE TREE LILAC	±6' HT	CLUMP

PLANT SCHEDULE

KEY	QTY		SIZE	COND	NOTES
CANOPY TREES					
GD	3	GYMNOCLADUS DIOICUS KENTUCKY COFFEETREE	2" CAL	B&B	
GT	42	GLEDITSIA TRIACANTHOS 'HARVE' NORTHERN ACCLAIM HONEYLOCUST	2 1/2" CAL	B&B	
UM	20	ULMUS 'MORTON' ACCOLADE ELM	2 1/2" CAL	B&B	
ORNAMENTAL TREES					
AG	17	ACER GINNALA AMUR MAPLE	7-8' HT	B&B	MULTI-STEM
MC	16	MALUS 'CENTZAM' CENTURION CRABAPPLE	2" CAL	B&B	
SR	16	SYRINGA RETICULATA 'IVORY SILK' JAPANESE TREE LILAC	7-8' HT	B&B	MULTI-STEM
EVERGREEN TREES					
PG	10	PICEA GLAUCA 'DENSATA' BLACK HILLS SPRUCE	6-7' HT	B&B	
PN	27	PINUS NIGRA AUSTRIAN PINE	6-7' HT	B&B	
EVERGREEN SHRUBS					
TM	32	TAXUS x MEDIA 'TAUNTON' TAUNTON YEW	#5	CONT.	
SHRUBS					
CS	39	CORNUS SERICEA 'CARDINAL' CARDINAL RED OSIER DOGWOOD	#5	CONT.	54" SPACING
HA	55	HYDRANGEA ARBORESCENS 'ANNABELLE' ANNABELLE HYDRANGEA	#5	CONT.	48" SPACING
RA	515	RHUS AROMATICA 'GRO-LOW' GRO-LOW FRAGRANT SUMAC	#3	CONT.	48" SPACING
SB	731	SPIRAEA X BUMALDA 'GOLDFLAME' GOLDFLAME SPIREA	#3	CONT.	36" SPACING
PERENNIALS					
HH	120	HOSTA 'HONEYBELLS' HONEYBELLS HOSTA	#1	CONT.	32" SPACING
HR	957	HEMEROCALLIS 'ROCKET CITY' ROCKET CITY DAYLILY	#1	CONT.	24" SPACING
HS	1414	HEMEROCALLIS 'STELLA D'ORO' STELLA D'ORO DAYLILY	#1	CONT.	24" SPACING
SM	323	SEDUM 'AUTUMN JOY' AUTUMN JOY SEDUM	#1	CONT.	30" SPACING
ORNAMENTAL GRASSES					
CA	796	CALAMAGROSTIS ACUTIFLORA 'KARL FOERSTER' FEATHER REED GRASS	#1	CONT.	30" SPACING
PV	563	PANICUM VIRGATUM 'HEAVY METAL' HEAVY METAL SWITCHGRASS	#1	CONT.	30" SPACING

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LANDSCAPE SCHEDULE

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:
ACAD FILE: 100415F D-planting
DATE: 05/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9665

SHEET NO.
010
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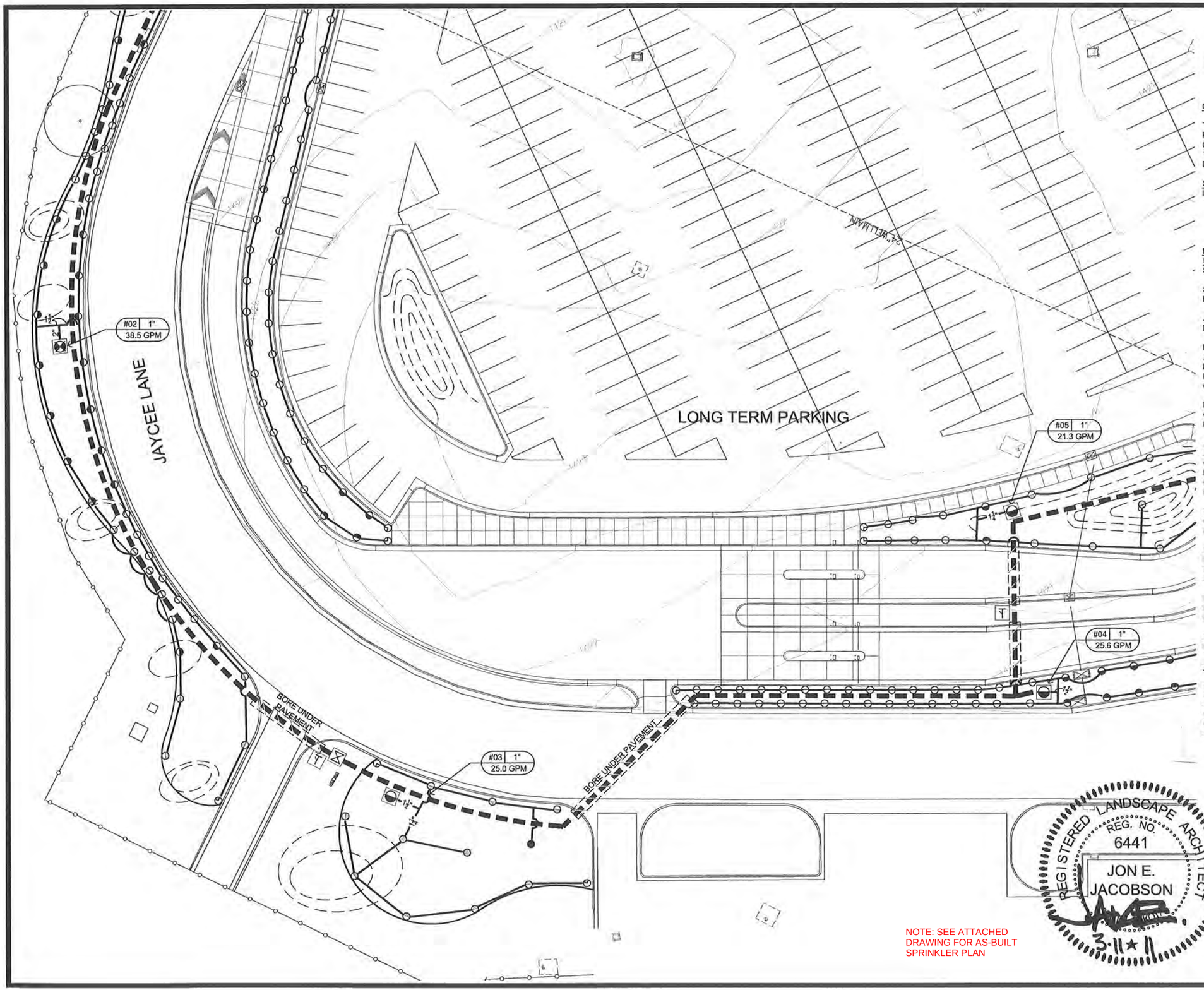
021



ZONE NUMBER
VALVE SIZE
#XX X"
XX.X GPM
FLOW

SCALE: 1"=40'
0 20 40 FT

GENERAL NOTES

THE CONTRACTOR SHALL BE RESPONSIBLE FOR LOCATING ALL PUBLIC AND PRIVATE UTILITIES WHICH LIE WITHIN THE CONSTRUCTION AREA PRIOR TO ANY CONSTRUCTION. NOTIFY THE LANDSCAPE ARCHITECT OF ANY DISCREPANCIES. SOUTH DAKOTA ONE CALL NOTIFICATION CENTER: 1-800-781-7474.

SYSTEM DESIGN (CALCULATED MAXIMUM FRICTION LOSS IN IRRIGATION SYSTEM):
ZONE #28 (56 GPM)
50 PSI REQUIRED AT HEAD
±12 PSI LOSS FROM IRRIGATION CONNECTION TO FURTHEST HEAD ON ZONE.

MINIMUM REQUIREMENT: 60 GPM AND 65 PSI REQUIRED AT THE IRRIGATION CONNECTION. SEE WATER SUPPLY WELL SPECIFICATION FOR MINIMUM PUMP REQUIREMENTS.

SPRINKLER LOCATIONS ARE TO SCALE. PIPE LOCATIONS ARE DIAGRAMMATIC.

ALL IRRIGATION EQUIPMENT AND PIPING TO BE INSTALLED PER MANUFACTURER RECOMMENDATIONS.

IRRIGATION CONTRACTOR IS RESPONSIBLE FOR COORDINATION AND INSTALLATION OF ALL EQUIPMENT TO PROVIDE A WORKING IRRIGATION SYSTEM FOR THE OWNER. THIS INCLUDES MISC. PLUMBING BETWEEN THE PUMP AND IRRIGATION PIPING AND CONTROLS.

IRRIGATION EQUIPMENT QUANTITIES ARE FOR INFORMATION ONLY. VERIFY QUANTITIES. DRAWING TO PREVAIL IF DISCREPANCIES OCCUR.

ALL CONSTRUCTION SHALL CONFORM TO CITY, COUNTY, STATE, AND FEDERAL REQUIREMENTS. IT SHALL BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR TO ENSURE THAT ALL IRRIGATION EQUIPMENT MEETS GOVERNMENT REGULATIONS. CONTRACTOR SHALL ALSO BE RESPONSIBLE FOR OBTAINING ANY NECESSARY PERMITS OR APPROVALS.

THIS PLAN IS SCHEMATIC AND DUE TO THE NATURE OF CONSTRUCTION SLIGHT FIELD MODIFICATIONS MAY BE NECESSARY TO IMPLEMENT PLAN.

ALL IRRIGATION SLEEVING TO BE THE RESPONSIBILITY OF THE IRRIGATION CONTRACTOR. ELECTRICAL WIRES FOR IRRIGATION VALVES AND IRRIGATION LINES ARE TO BE PLACED IN SEPARATE SLEEVES. SEE SPECIFICATIONS.

IRRIGATION CONTRACTOR SHALL REVIEW WINTERIZATION PROCEDURES FOR IRRIGATION SYSTEM WITH OWNERS REPRESENTATIVE.

ALL PIPING FOR MPR40 ROTATOR ZONES TO BE 1" IN SIZE UNLESS NOTED OTHERWISE.

SEE IRRIGATION DETAILS, SHEET O21.

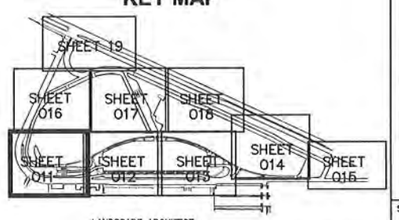
THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING A COPY OF THE PROJECT SPECIFICATIONS PRIOR TO BIDDING. THE PROJECT SPECIFICATIONS ARE A PART OF THESE PLANS AND SHALL BE CONSULTED BY THE IRRIGATION CONTRACTOR. THE CONTRACTOR IS RESPONSIBLE FOR IMPLEMENTING WORK AS SPECIFIED IN THE PROJECT SPECIFICATIONS AND ON THE PLANS.

328400 PLANTING IRRIGATION
332100 WATER SUPPLY WELLS

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3·11·11

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

KEY MAP



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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DESIGNED BY: CHK
DRAWN BY: CHK
CHECKED BY: CHK
REVISIONS:
ACAD FILE: 100415F G-Irrigation.dwg
DATE: 03/11/2011
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BY: DATE:

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SHEET NO.
O11
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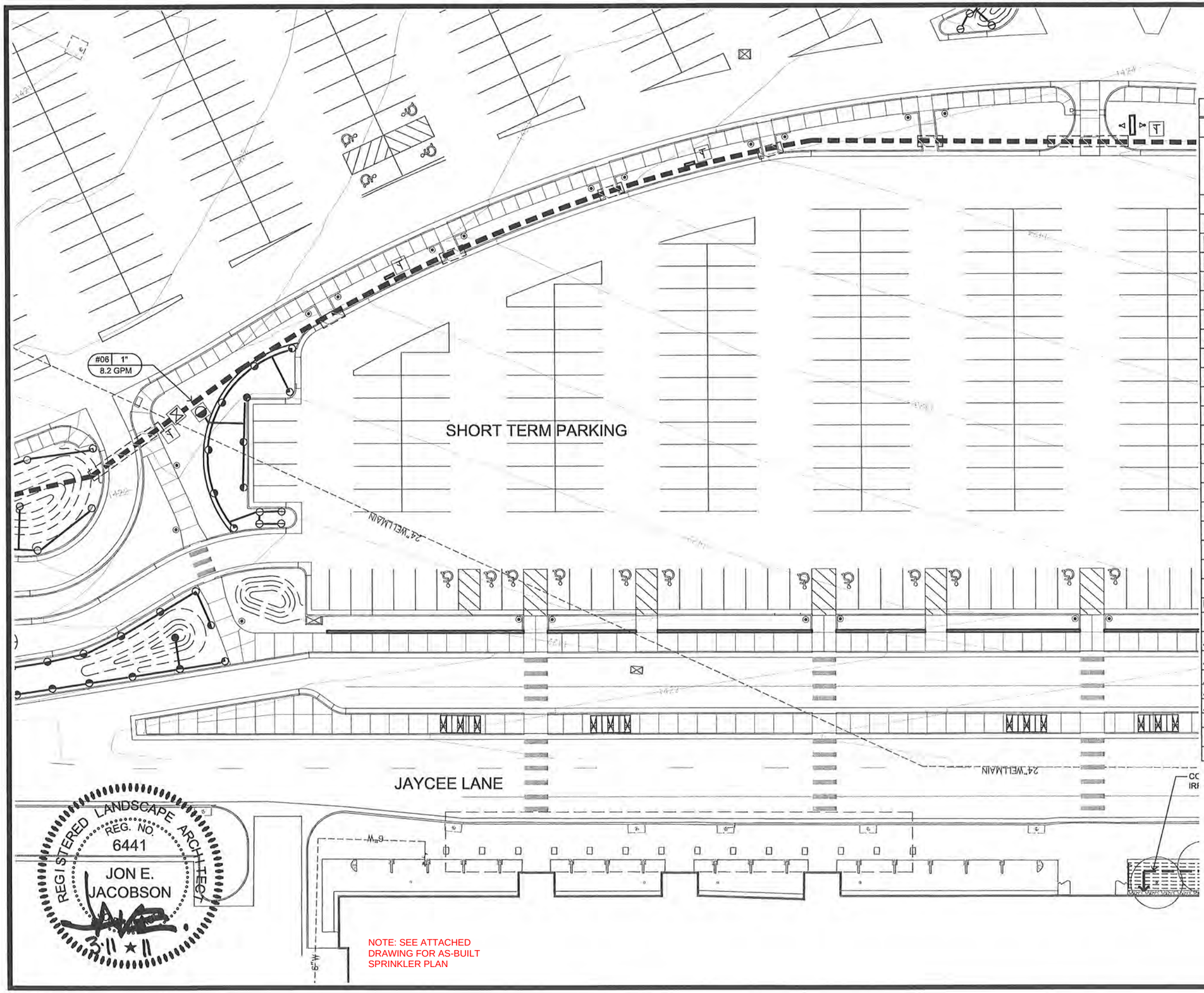
O21



SCALE: 1"=40'

0 20 40 FT

IRRIGATION EQUIPMENT SCHEDULE

KEY	QTY	DESCRIPTION	COMMENTS
W	1	WELL	SEE SPECIFICATIONS
	1	I-CORE CONTROLLER HUNTER IC-3601-PL	LOCATE IRRIGATION CONTROLS IN THE PARKING BUILDING MECHANICAL ROOM
	1	HUNTER DUAL48M 2 WIRE DECODER MODULE	
	1	REMOTE CONTROL HUNTER ICR-KIT	
	33	HUNTER DUAL STATION DECODER AND SURGE ARRESTOR	
S	1	HUNTER SOLAR SYNC MODULE AND SENSOR	COORDINATE LOCATION W/ ENG.
	10	1" GLOBE VALVE HUNTER ICV-101G	4/O21
	24	1-1/2" GLOBE VALVE HUNTER ICV-151G	4/O21
	1	1" DRIP ZONE KIT HUNTER ICZ-101	
T	18	QUICK COUPLING VALVE HUNTER HQ-3RC	INCLUDE 3 EA: HK-33 KEY & HS-0 SWIVEL
	6	3" PVC ISOLATION VALVE IN VALVE BOX	VERIFY LOCATIONS WITH OWNER
SR	14	HUNTER PGP ULTRA PGP-04 - 3.0SR	SHORT RADIUS 3.0 GPM @ 50 PSI
	2	HUNTER PGP ULTRA PGP-04 - 3.5LA	LOW ANGLE 3.5 GPM @ 50 PSI
	65	HUNTER PGP ULTRA PGP-04 - 3.5LA	LOW ANGLE 3.5 GPM @ 50 PSI
	11	HUNTER PGP ULTRA PGP-04 - 4.0	4.0 GPM @ 45 PSI
	62	HUNTER PGP ULTRA PGP-04 - 6.0	6.0 GPM @ 45 PSI
	9	HUNTER PGP ULTRA PGP-04 - 8.0	8.0 GPM @ 45 PSI
	15	HUNTER MP ROTATOR MPR40-04-MP1000-90	0.19 GPM @ 40 PSI 8' TO 15' RADIUS
	193	HUNTER MP ROTATOR MPR40-04-MP1000-180	0.37 GPM @ 40 PSI 8' TO 15' RADIUS
	13	HUNTER MP ROTATOR MPR40-04-MP2000-90	0.40 GPM @ 40 PSI 13' TO 21' RADIUS
	273	HUNTER MP ROTATOR MPR40-04-MP2000-180	0.74 GPM @ 40 PSI 13' TO 21' RADIUS
	3	HUNTER MP ROTATOR MPR40-04-MP2000-360	1.47 GPM @ 40 PSI 13' TO 21' RADIUS
	4	HUNTER MP ROTATOR MPR40-04-MP3000-90	0.86 GPM @ 40 PSI 22' TO 30' RADIUS
	40	HUNTER MP ROTATOR MPR40-04-MP3000-180	1.82 GPM @ 40 PSI 22' TO 30' RADIUS
	7	HUNTER MP ROTATOR MPR40-04-MP3000-360	3.64 GPM @ 40 PSI 22' TO 30' RADIUS
	875 LF	4" SLEEVE SCHEDULE 40 PVC	
	5,530 LF	2-1/2" MAINLINE CLASS 200 PVC	
	11,710 LF	1" LATERAL SDR 21 POLY	
1¼"	1,900 LF	1-1/4" LATERAL SDR 21 POLY	
1½"	855 LF	1-1/2" LATERAL CLASS 160 PVC	
2"	515 LF	2" LATERAL CLASS 160 PVC	
2½"	50 LF	2-1/2" LATERAL CLASS 160 PVC	
	400 LF	¾" CL315 PVC DRIP LINE HEADER PIPE	
	2230 LF	NETAFIM TECHLINE TLDL6-12 DRIPLINE, 18" SPACING	
1½"	170 LF	1-1/4" MAINLINE CLASS 200 PVC	

REGISTERED LANDSCAPE ARCHITECT
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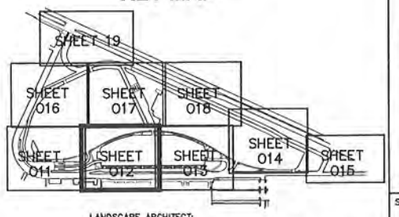
JON E. JACOBSON
3-11

KEY MAP



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FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph. 605.332.9685

SHEET NO.
O12
OF
O21

LONG TERM PARKING

SHORT TERM PARKING

#07 | 1-1/2" | 35.2 GPM

#08 | 1" | 12.4 GPM

A | 1" | 11.2 GPM

B | 1" | 14.9 GPM

CONNECT TO EXISTING IRRIGATION MAINLINE

CONNECT ZONES A & B TO THE EXISTING IRRIGATION CONTROLLER

24" WELL MAIN

JAYCEE LANE

SCALE: 1"=40'

0 20 40 FT

IRRIGATION OPERATION SCHEDULE

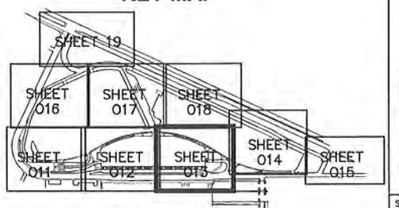
ZONE	PRECIPITATION RATE (IN/HR)	RUN TIME (MINUTES PER WEEK)
1	0.39	154
2	0.39	154
3	0.39	154
4	0.39	154
5	0.39	154
6	0.39	154
7	0.39	154
8	0.39	154
9	0.39	154
10	0.39	154
11	0.39	154
12	0.39	154
13	0.39	154
14	0.39	154
15	0.39	154
16	0.62	97
17	0.62	97
18	0.62	97
19	0.62	97
20	0.62	97
21	0.55	109
22	0.55	109
23	0.55	109
24	0.92	65
25	0.55	109
26	0.55	109
27	0.62	97
28	0.62	97
29	0.62	97
30	0.62	97
31	0.62	97
32	0.62	97
33	0.62	97
A	0.39	154
B	-	-

RUN TIMES INDICATED ARE A REFERENCE POINT BASED ON MANUFACTURER PUBLISHED PRECIPITATION RATES. ACTUAL RUN TIMES MAY NEED TO BE ADJUSTED BASED ON FIELD CONDITIONS.

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CMK
DRAWN BY: CMK
CHECKED BY: CMK
REVISIONS:

ACAD FILE: 100413SF D-irrigation.dwg
DATE: 03/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
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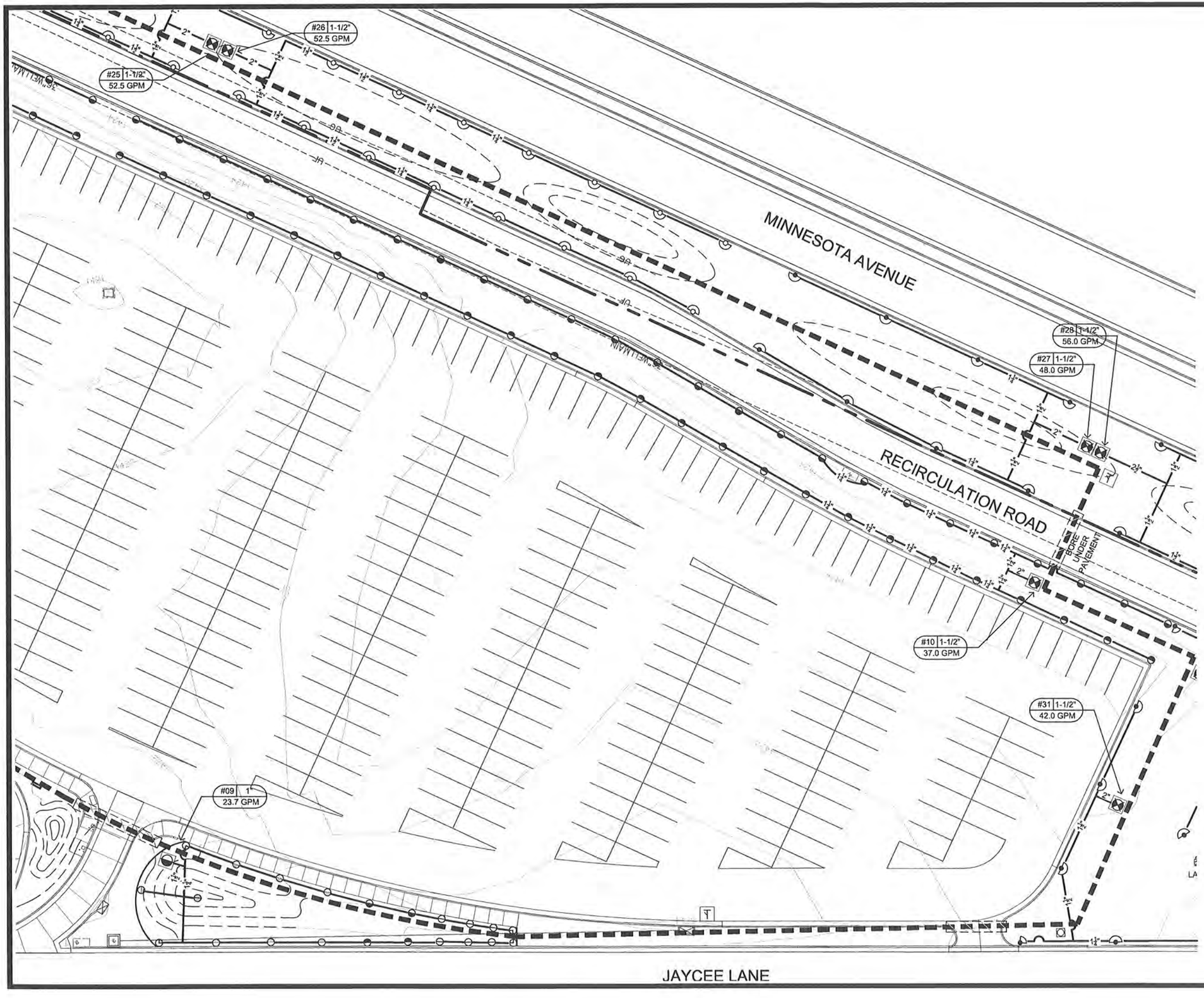
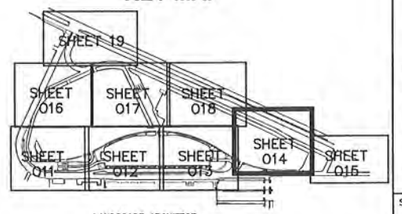
SHEET NO.
013
OF
021



NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

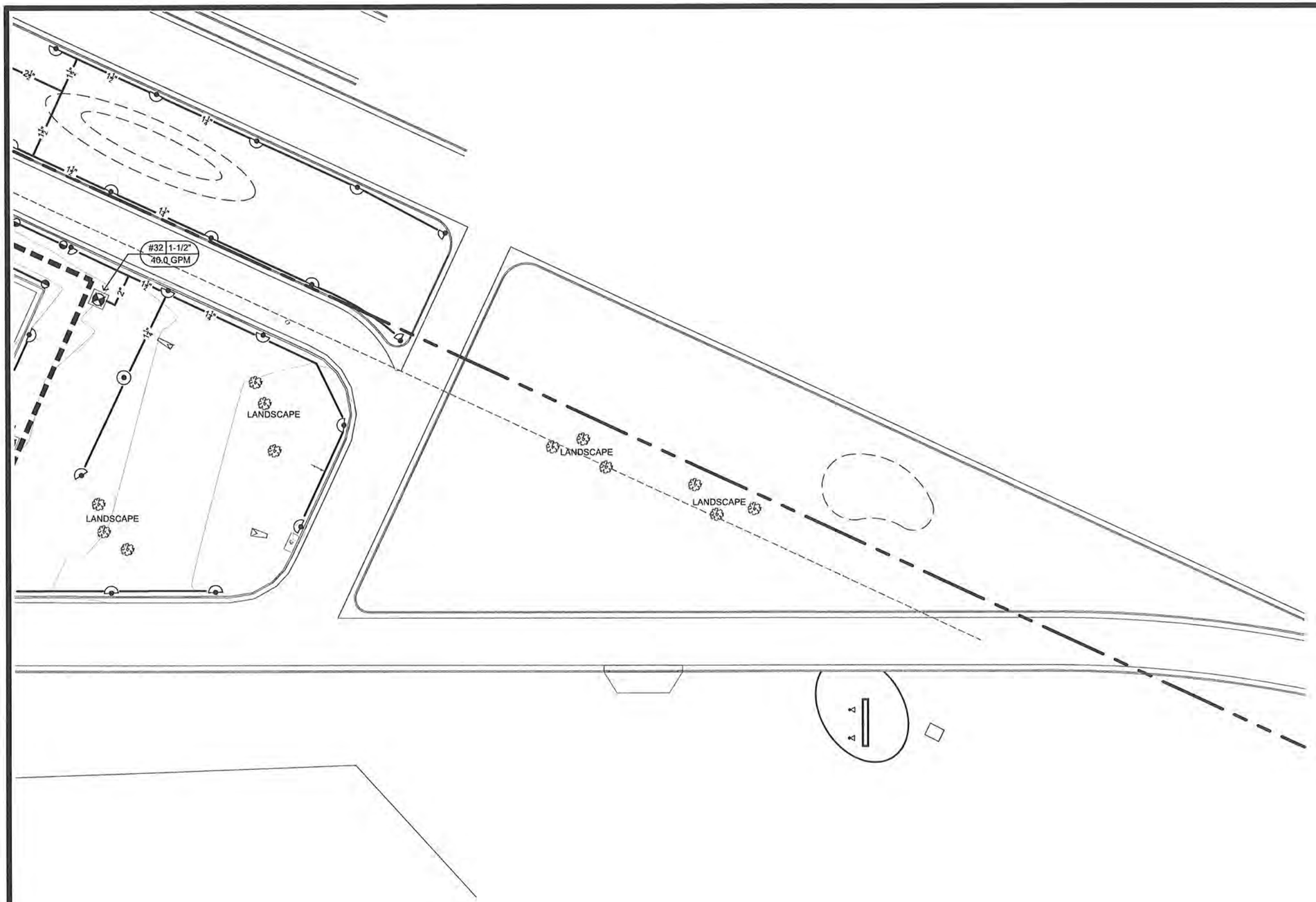
IRRIGATION PLAN

DESIGNED BY: CWK	ACAD FILE: 10415F C-Irrigation.dwg	
DRAWN BY: CWK	DATE: 03/11/2011	
CHECKED BY: CWK		
REVISIONS:	BY:	DATE:
	BY:	DATE:

GOLDSMITH HECK ENGINEERS, INC.
324 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9685

FSD SIOUX FALLS REGIONAL AIRPORT

SHEET NO.
014
OF
021



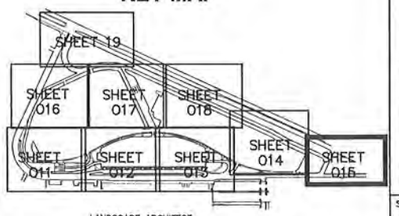
SCALE: 1"=40'

0 20 40 FT

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP



LANDSCAPE ARCHITECT:

CONFLUENCE

524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1705 FAX 605.339.1215 WWW.CONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CWK — ACAD FILE: 100415F C-Irrigation.dwg
DRAWN BY: CWK
CHECKED BY: CWK — DATE: 03/11/2011
REVISIONS: BY: DATE: BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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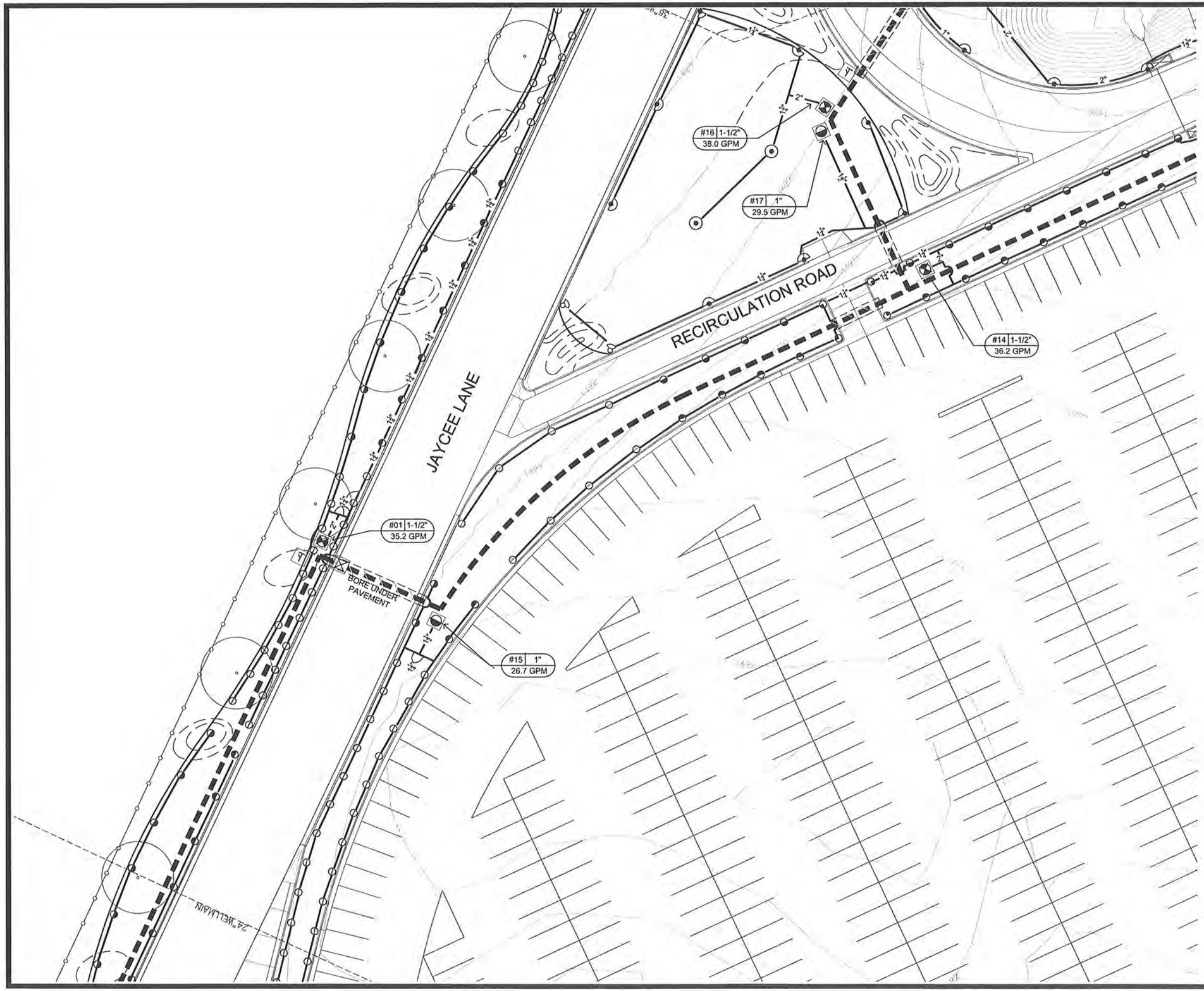
SHEET NO.
015
OF
021

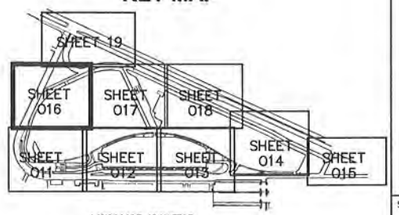


SCALE: 1"=40'
0 20 40 FT

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:
ACAD FILE: 100415F_0-Irrigation.dwg
DATE: 03/21/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
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SHEET NO.
O16
OF
O21

MINNESOTA AVENUE

RECIRCULATION ROAD

EXIT PLAZA

#13 | 1" | 29.0 GPM

#21 | 1-1/2" | 42.0 GPM

#29 | 1-1/2" | 46.0 GPM

#30 | 1-1/2" | 32.0 GPM

#12 | 1-1/2" | 31.0 GPM

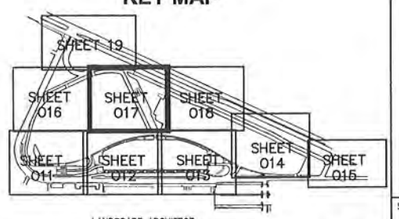
SCALE: 1"=40'

0 20 40 FT

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:

AGAD FILE: 190415F D-irrigation.dgn
DATE: 03/11/2011
BY:
BY:
DATE:
DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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SHEET NO.
017
OF
021

MINNESOTA AVENUE

RECIRCULATION ROAD

#23 | 1-1/2" | 42.0 GPM

#24 | 1-1/2" | 42.0 GPM

#11 | 1-1/2" | 37.0 GPM

#25 | 1-1/2" | 52.5 GPM

SCALE: 1"=40'

0 20 40 FT

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON

KEY MAP

SHEET 019
SHEET 016
SHEET 017
SHEET 018
SHEET 011
SHEET 012
SHEET 013
SHEET 014
SHEET 015

LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CMK
DRAWN BY: CMK
CHECKED BY: CMK
REVISIONS:

ACAD FILE: 100415F_0-irrigation.dwg
DATE: 03/11/2011

BY: DATE:
BY: DATE:

FSD
SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
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SHEET NO.
018
OF
021

MINNESOTA AVENUE

JAYCEE LANE

MINNESOTA AVENUE

BORE UNDER PAVEMENT

SCALE: 1"=40'

0 20 40 FT

#18 | 1-1/2" 40.0 GPM

#19 | 1-1/2" 48.0 GPM

#20 | 1-1/2" 34.0 GPM

#22 | 1-1/2" 38.5 GPM

#33 | 1-1/2" 42.0 GPM

3/6" WELL MAIN

3/6" WELL MAIN

NOTE: SEE ATTACHED DRAWING FOR AS-BUILT SPRINKLER PLAN

REGISTERED LANDSCAPE ARCHITECT
REG. NO. 6441
JON E. JACOBSON
3-11-11

KEY MAP

SHEET 19
SHEET 016
SHEET 017
SHEET 018
SHEET 011
SHEET 012
SHEET 013
SHEET 014
SHEET 015

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION PLAN

DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
REVISIONS:

ACAD FILE: 100415F 0-irrigation.dwg
DATE: 03/11/2011
BY: DATE:
BY: DATE:

SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph. 605.332.9985

LANDSCAPE ARCHITECT:
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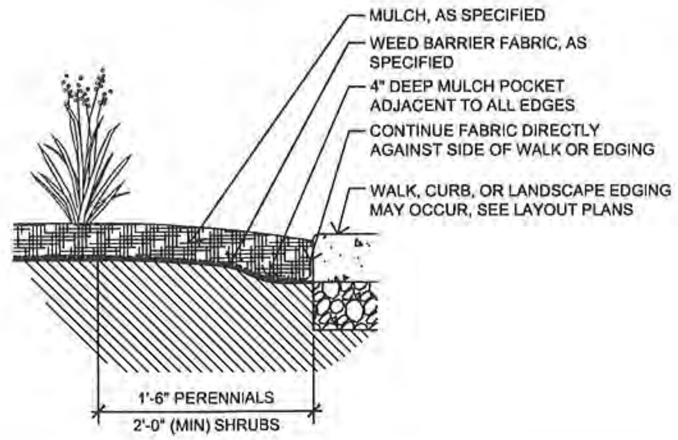
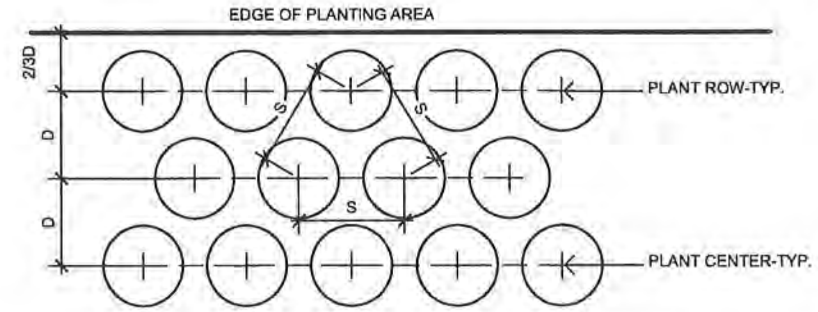
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

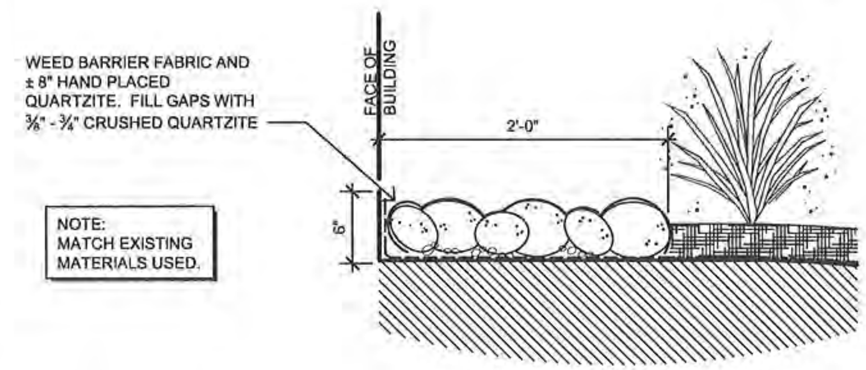


4 / O20 **PLANT BED EDGE** N.T.S.



5 / O20 **PLANT SPACING** SCALE: 3/4" = 1'-0"

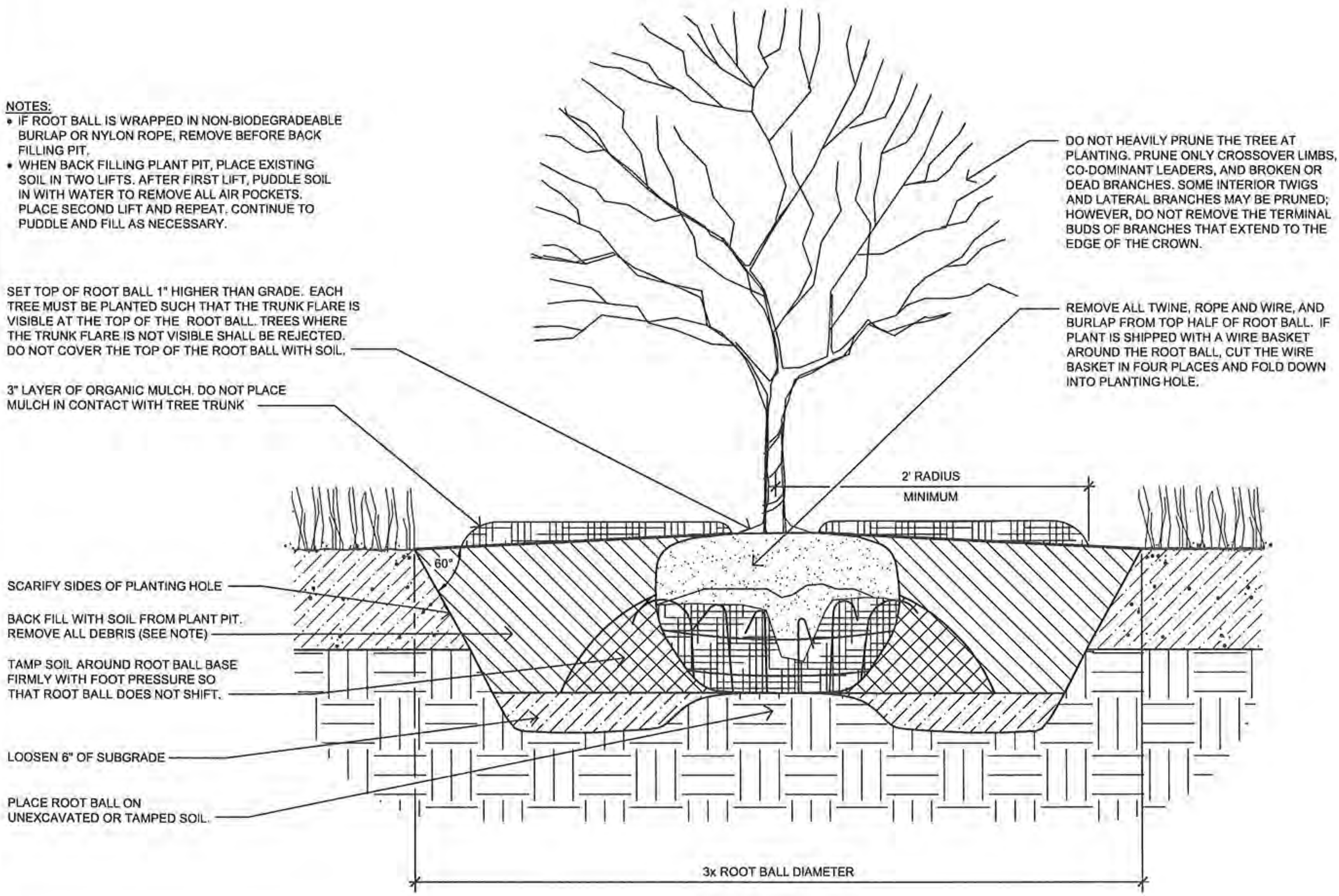
TRIANGULAR SPACING - 'S'	DISTANCE BETWEEN ROWS - 'D'	TOTAL AREA PER PLANT (SF)
12"	10-1/2"	0.88
15"	13"	1.35
18"	15-1/2"	1.94
21"	18"	2.63
24" (2')	21"	3.50
30"	26"	5.42
36" (3')	31"	7.75
42"	36"	10.50



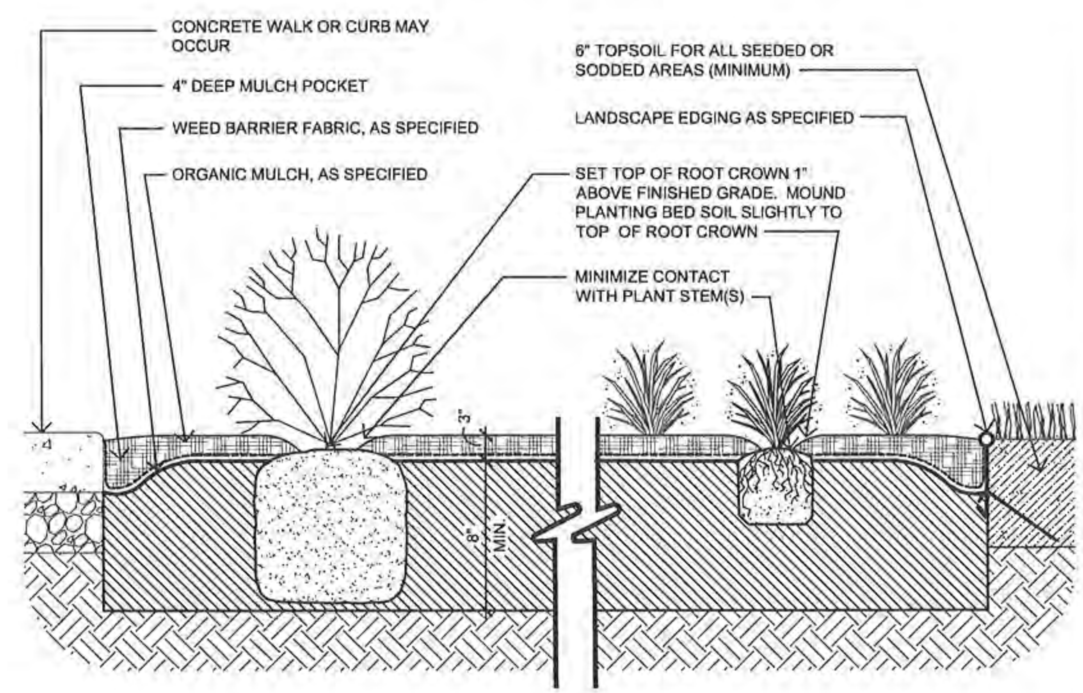
NOTE:
MATCH EXISTING MATERIALS USED.

3 / O20 **QUARTZITE EDGING** SCALE: 3/4" = 1'-0"

NOTES:
- IF ROOT BALL IS WRAPPED IN NON-BIODEGRADEABLE BURLAP OR NYLON ROPE, REMOVE BEFORE BACK FILLING PIT.
- WHEN BACK FILLING PLANT PIT, PLACE EXISTING SOIL IN TWO LIFTS. AFTER FIRST LIFT, PUDDLE SOIL IN WITH WATER TO REMOVE ALL AIR POCKETS. PLACE SECOND LIFT AND REPEAT. CONTINUE TO PUDDLE AND FILL AS NECESSARY.



1 / O20 **B&B TREE PLANTING -TYP.** SCALE: 3/4" = 1'-0"



2 / O20 **PLANT BED DETAIL - TYP.** SCALE: 3/4" = 1'-0"

LANDSCAPE ARCHITECT:
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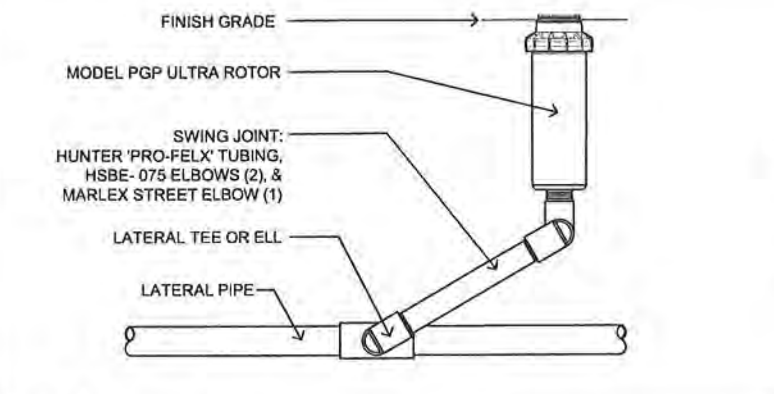
TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

PLANTING DETAILS
DESIGNED BY: CWK
DRAWN BY: CWK
CHECKED BY: CWK
ACAD FILE: 10041SF O-planting details.dwg
DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

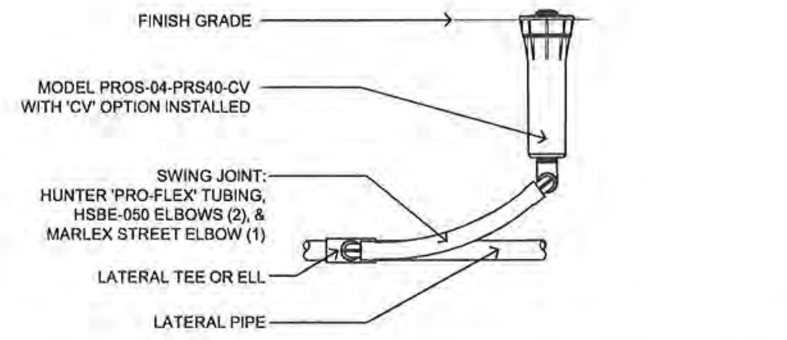
FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9665

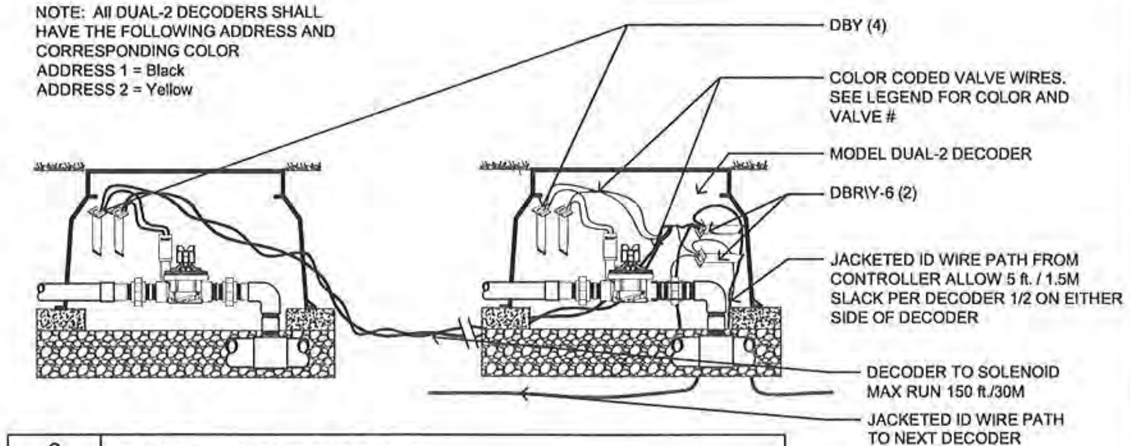
SHEET NO.
O20 OF O21



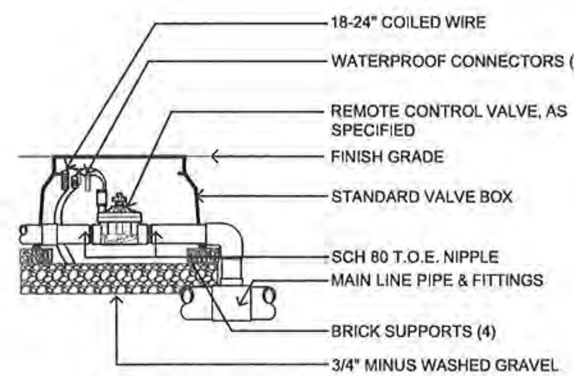
6 O21 ROTOR IRRIGATION HEAD SCALE: N.T.S.



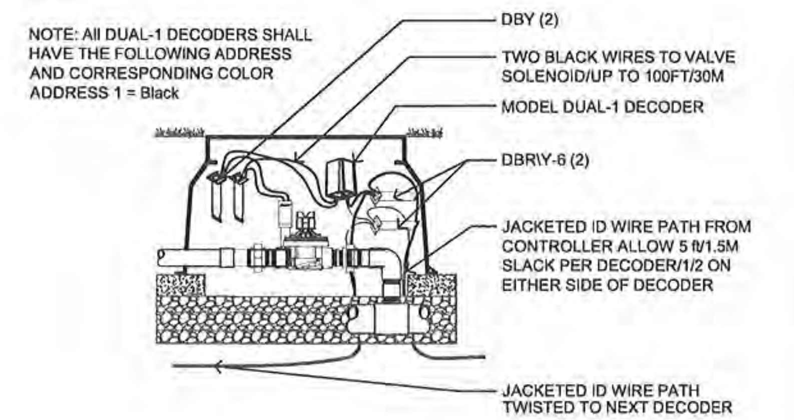
7 O21 MP ROTATOR SCALE: N.T.S.



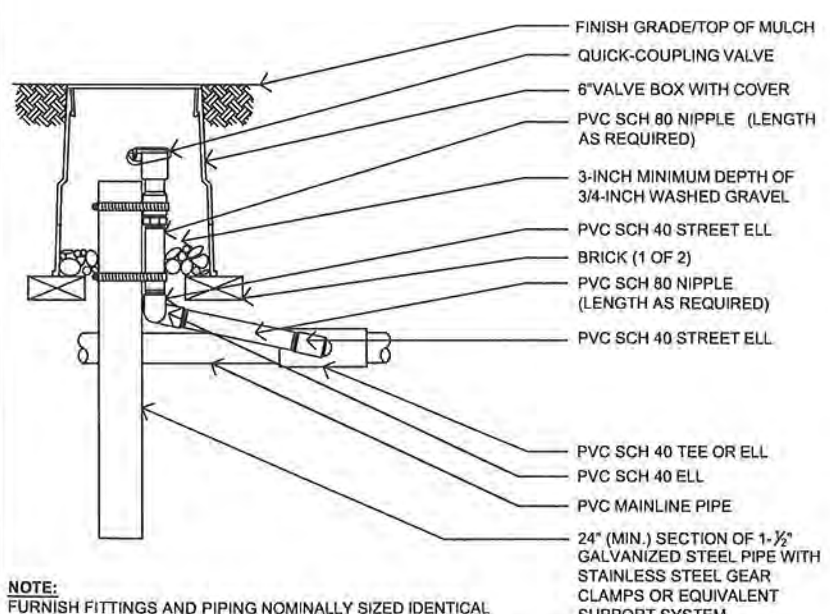
8 O21 DUAL- 2 DECODER SCALE: N.T.S.



4 O21 GLOBE VALVE SCALE: N.T.S.

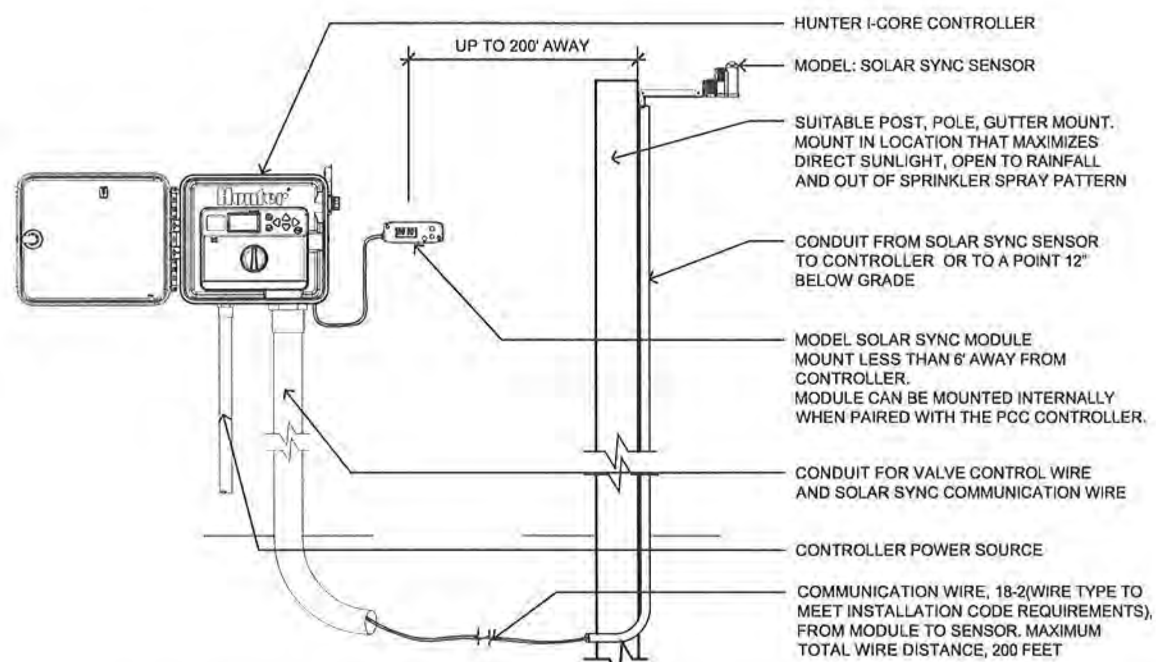


5 O21 DUAL- 1 DECODER SCALE: N.T.S.

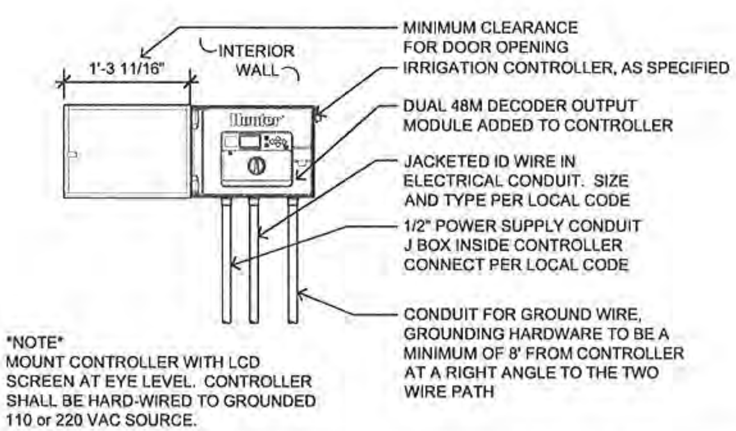


NOTE:
FURNISH FITTINGS AND PIPING NOMINALLY SIZED IDENTICAL TO NOMINAL QUICK COUPLING VALVE INLET SIZE.

1 O21 QUICK COUPLER SCALE: N.T.S.



2 O21 SOLAR SYNC SYSTEM SCALE: N.T.S.



NOTE
MOUNT CONTROLLER WITH LCD SCREEN AT EYE LEVEL. CONTROLLER SHALL BE HARD-WIRED TO GROUNDED 110 or 220 VAC SOURCE.

3 O21 I-CORE DECODER METALCONTROLLER SCALE: N.T.S.

LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1295 FAX 605.339.1215 THINKCONFLUENCE.COM

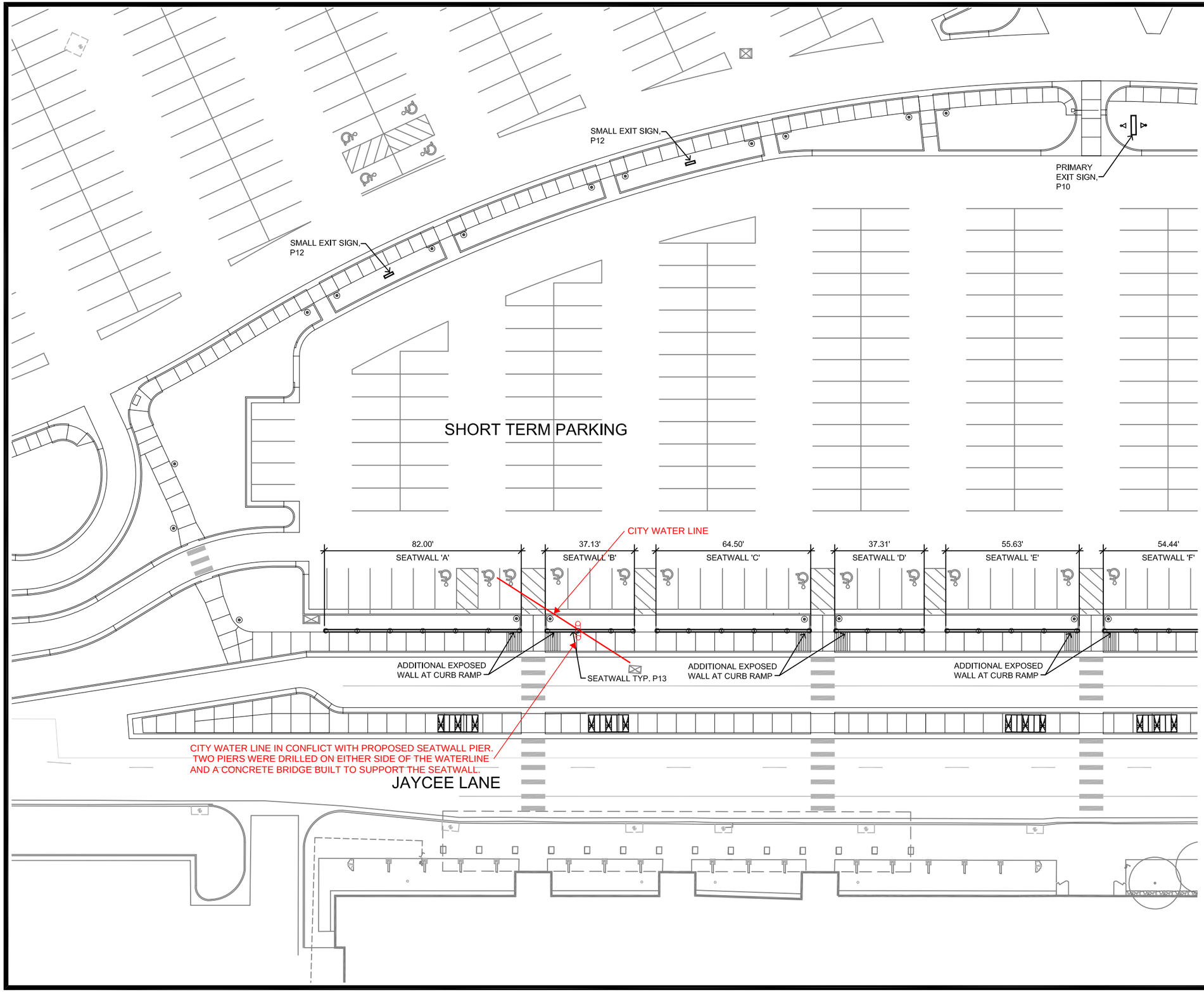
TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

IRRIGATION DETAILS
DESIGNED BY: CWK 10041SF O-irrigation details.dwg
DRAWN BY: CWK ACAD FILE:
CHECKED BY: CWK DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD
SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK
ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 - Sioux Falls, SD 57110 - Ph: 605.332.9685

SHEET NO.
O21
OF
O21



TERMINAL PARKING & ACCESS IMPROVEMENTS

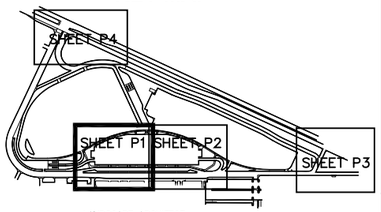
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE PLANS

DESIGNED BY: CWK
DRAWN BY: CWK ACAD FILE: 10041SF P-signage
CHECKED BY: CWK DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

AS-BUILT DRAWINGS
JANUARY 2013

KEY MAP



LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
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524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Phc 605.332.9685

SHEET NO.
P1
OF
P15

SCALE: 1"=40'
0 20 40 FT

SMALL EXIT SIGN, P12

SMALL EXIT SIGN, P12

LONG TERM PARKING

SHORT TERM PARKING

54.44' SEATWALL 'F'

54.00' SEATWALL 'G'

54.00' SEATWALL 'H'

80.69' SEATWALL 'I'

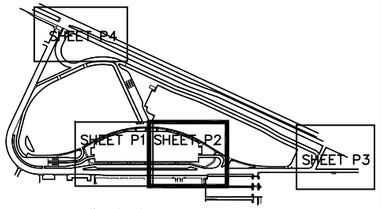
ADDITIONAL EXPOSED WALL AT CURB RAMP

SEATWALL TYP. P13

SMALL EXIT SIGN, 'EXIT' ON EAST FACE ONLY. P12

JAYCEE LANE

KEY MAP



TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE PLANS

DESIGNED BY: CWK
DRAWN BY: CWK ACAD FILE: 100415F P-signage
CHECKED BY: CWK DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

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TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

SCALE: 1"=40'

0 20 40 FT

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE PLANS

DESIGNED BY: CWK
DRAWN BY: CWK ACAD FILE: 10041SF P-signage
CHECKED BY: CWK DATE: 03/11/2011
REVISIONS: BY: DATE:
BY: DATE:

KEY MAP

LANDSCAPE ARCHITECT:
CONFLUENCE
524 NORTH MAIN AVENUE, SUITE 201 SIOUX FALLS, SOUTH DAKOTA 57104
TEL 605.339.1205 FAX 605.339.1215 THINKCONFLUENCE.COM

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SHEET NO.
P3
OF
P15

MINNESOTA AVENUE

JAYCEE LANE

MINNESOTA AVENUE

ENTRANCE SIGN, P5

EXISTING ELECTRICAL EQUIPMENT

N

SCALE: 1"=40'

0 20 40 FT

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE PLANS

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KEY MAP

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P4
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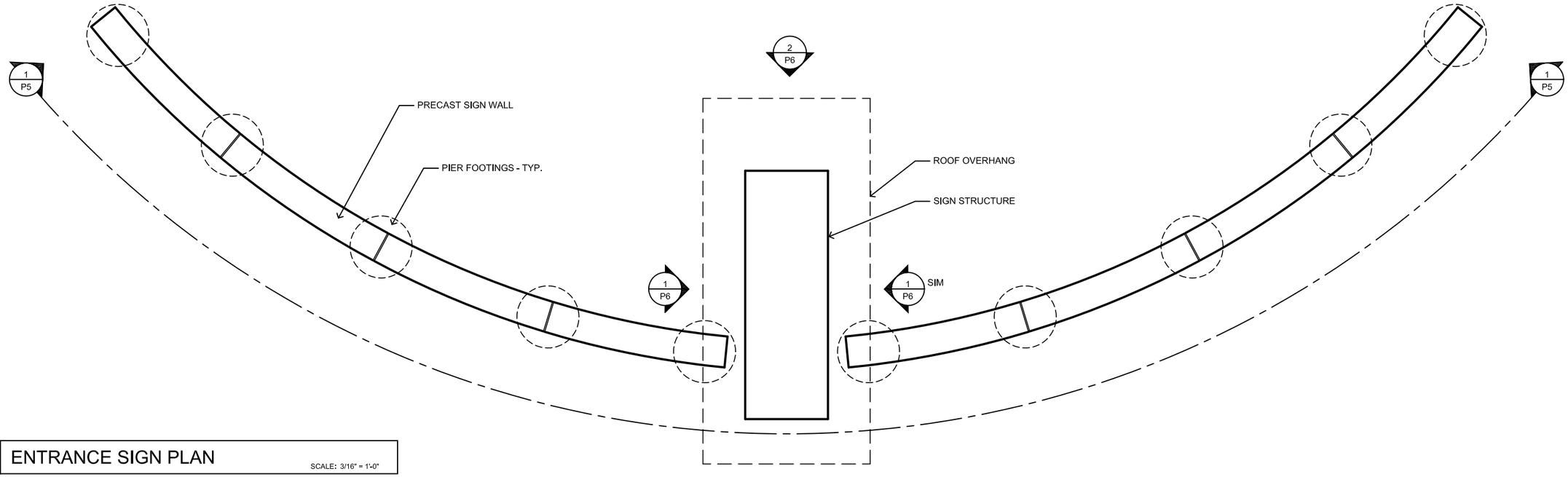
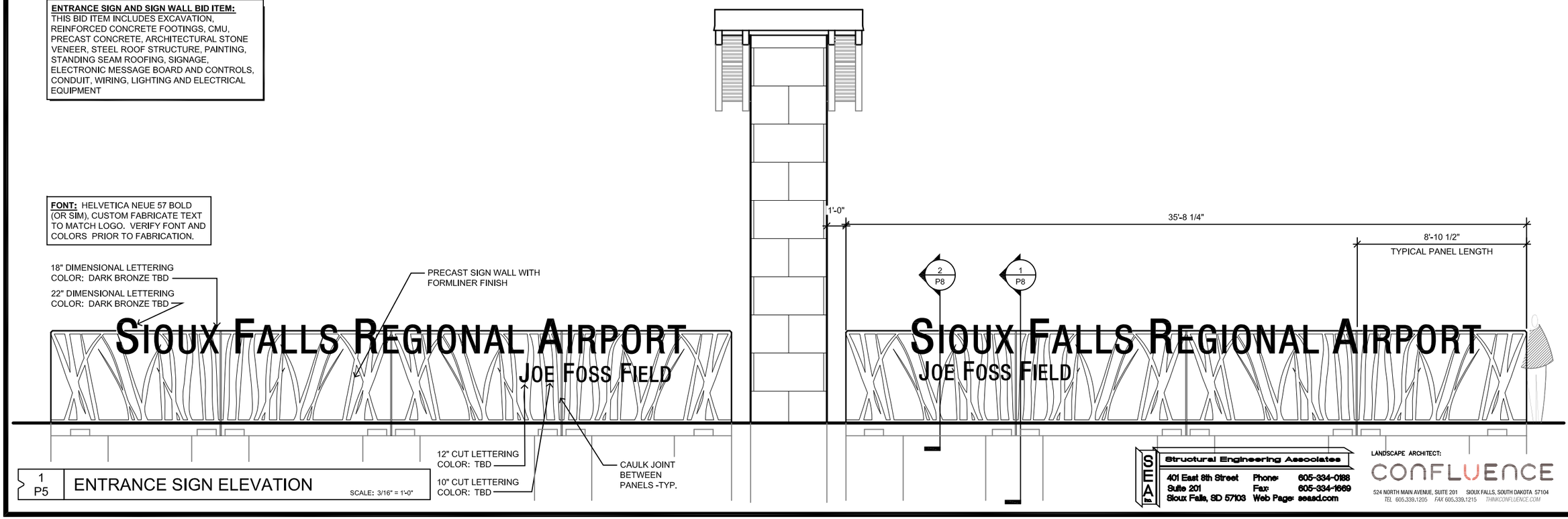
P15



2 P5 ENTRANCE SIGN PLAN SCALE: 3/16" = 1'-0"

ENTRANCE SIGN AND SIGN WALL BID ITEM:
THIS BID ITEM INCLUDES EXCAVATION, REINFORCED CONCRETE FOOTINGS, CMU, PRECAST CONCRETE, ARCHITECTURAL STONE VENEER, STEEL ROOF STRUCTURE, PAINTING, STANDING SEAM ROOFING, SIGNAGE, ELECTRONIC MESSAGE BOARD AND CONTROLS, CONDUIT, WIRING, LIGHTING AND ELECTRICAL EQUIPMENT

FONT: HELVETICA NEUE 57 BOLD (OR SIM), CUSTOM FABRICATE TEXT TO MATCH LOGO. VERIFY FONT AND COLORS PRIOR TO FABRICATION.



1 P5 ENTRANCE SIGN ELEVATION SCALE: 3/16" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE DETAILS

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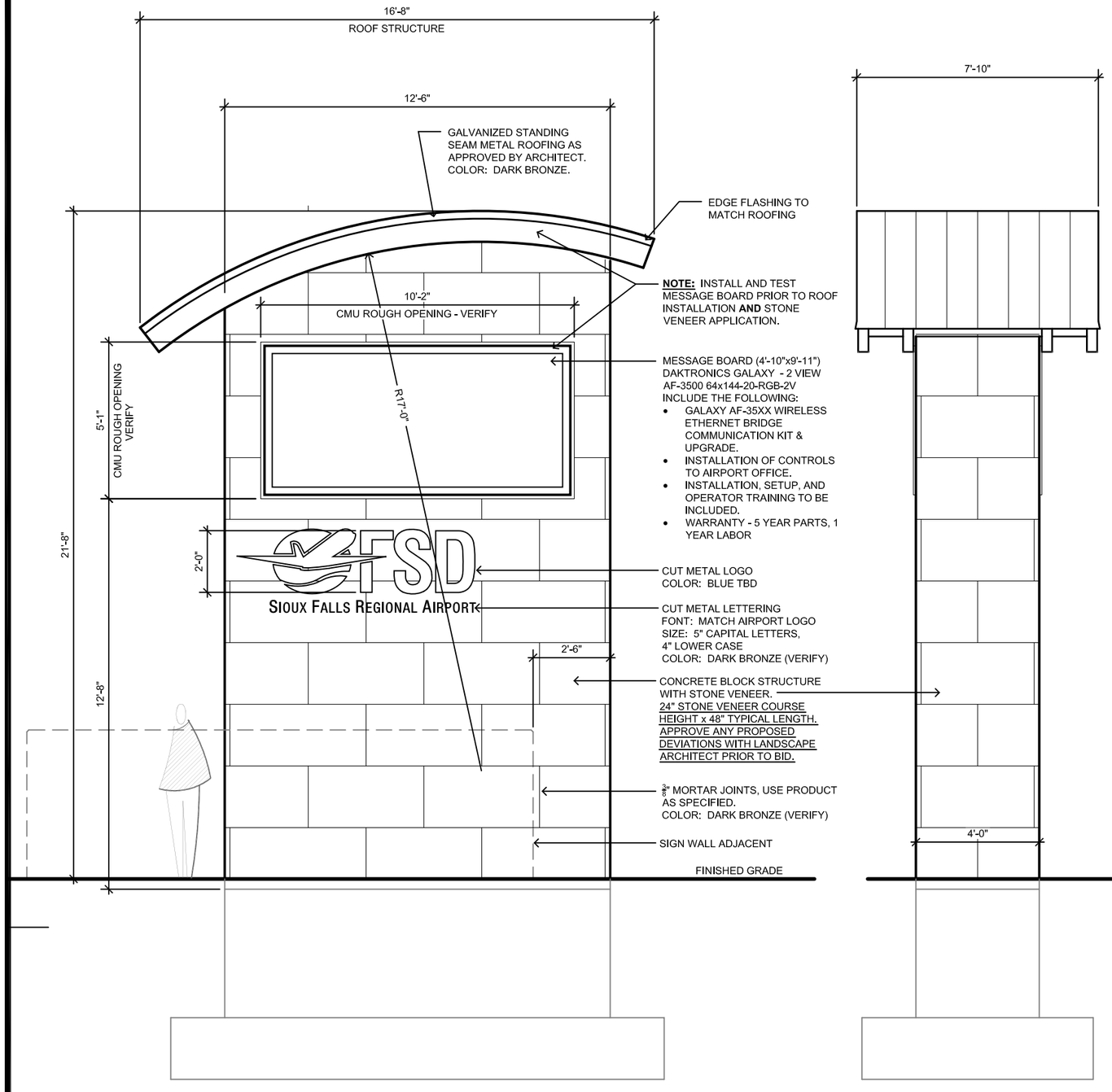

SOUTH ELEVATION

WEST ELEVATION

SOUTH ELEVATION (DEDUCT ATLERNATE #3)

1 P6 ENTRANCE SIGN ELEVATIONS SCALE: 1/4" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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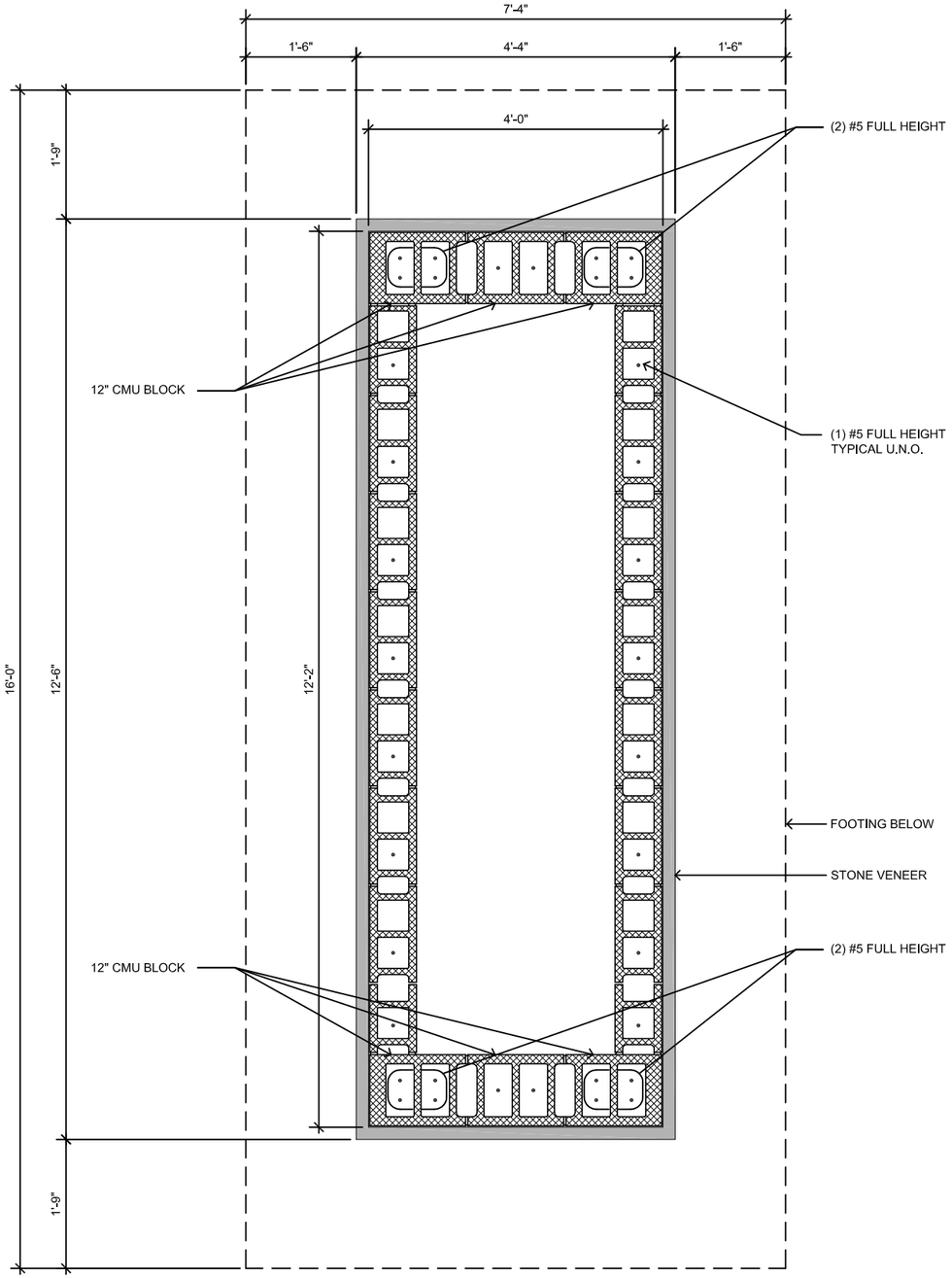
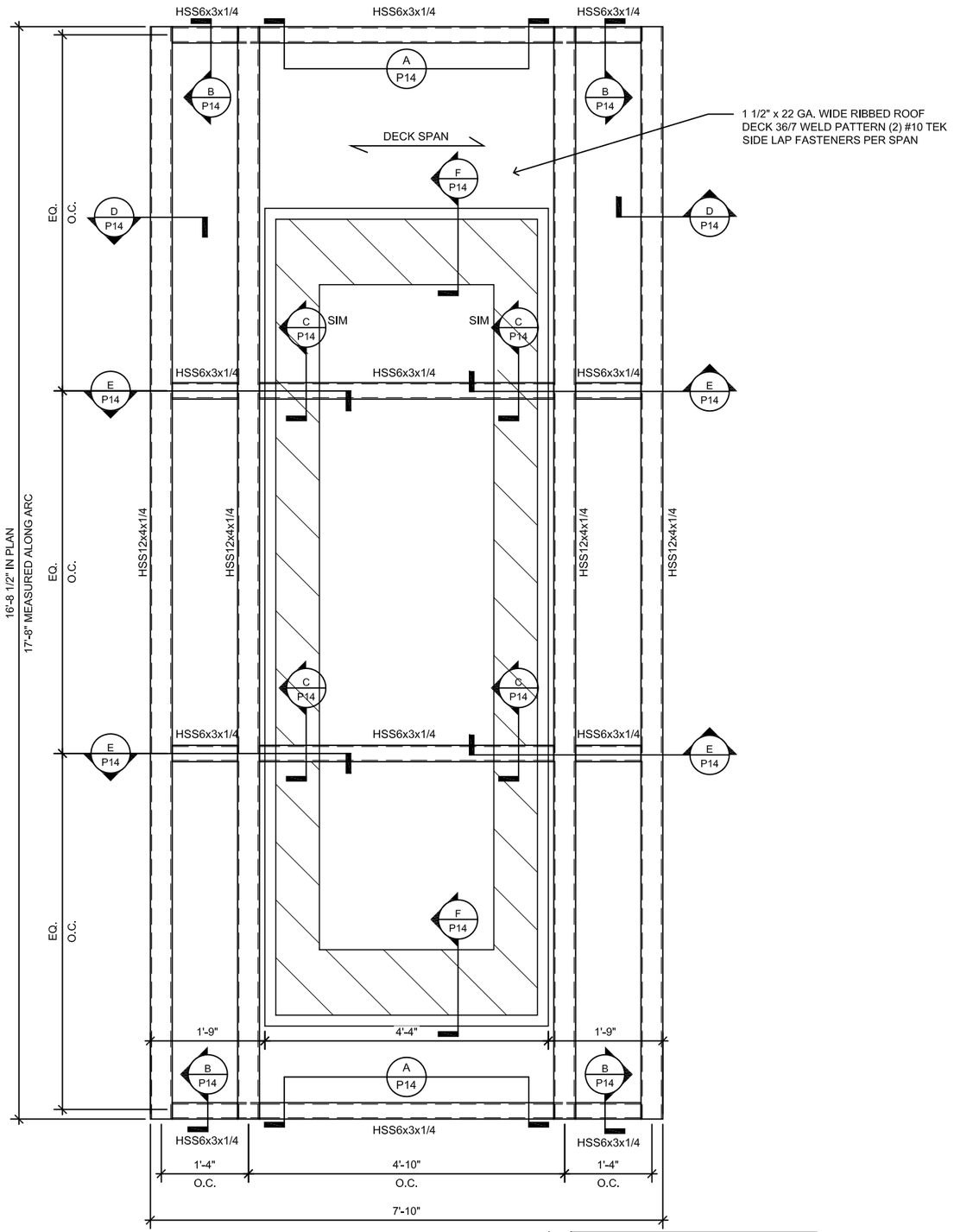


1 P7 **CMU REINFORCING LAYOUT** SCALE: 1/2" = 1'-0"



2 P7 **ROOF FRAMING LAYOUT** SCALE: 1/2" = 1'-0"

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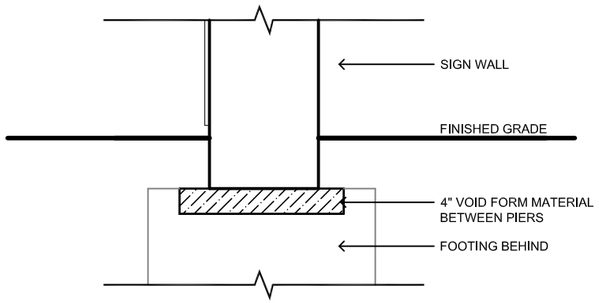
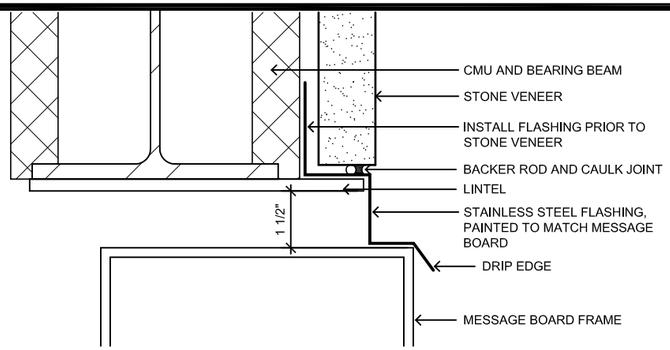
P7
OF
P15

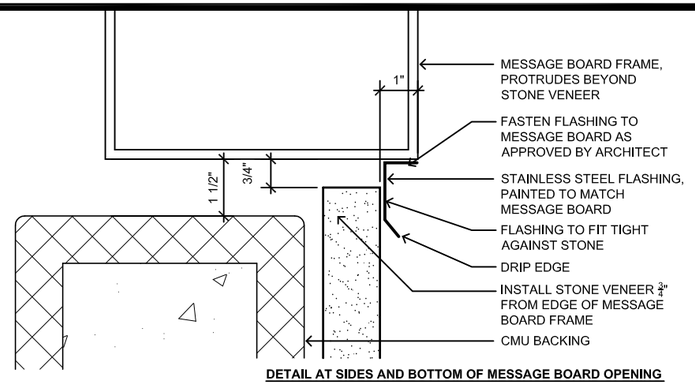


2 P8 | VOID FORM @ WALL SECTION — SCALE: 1/2" = 1'-0"



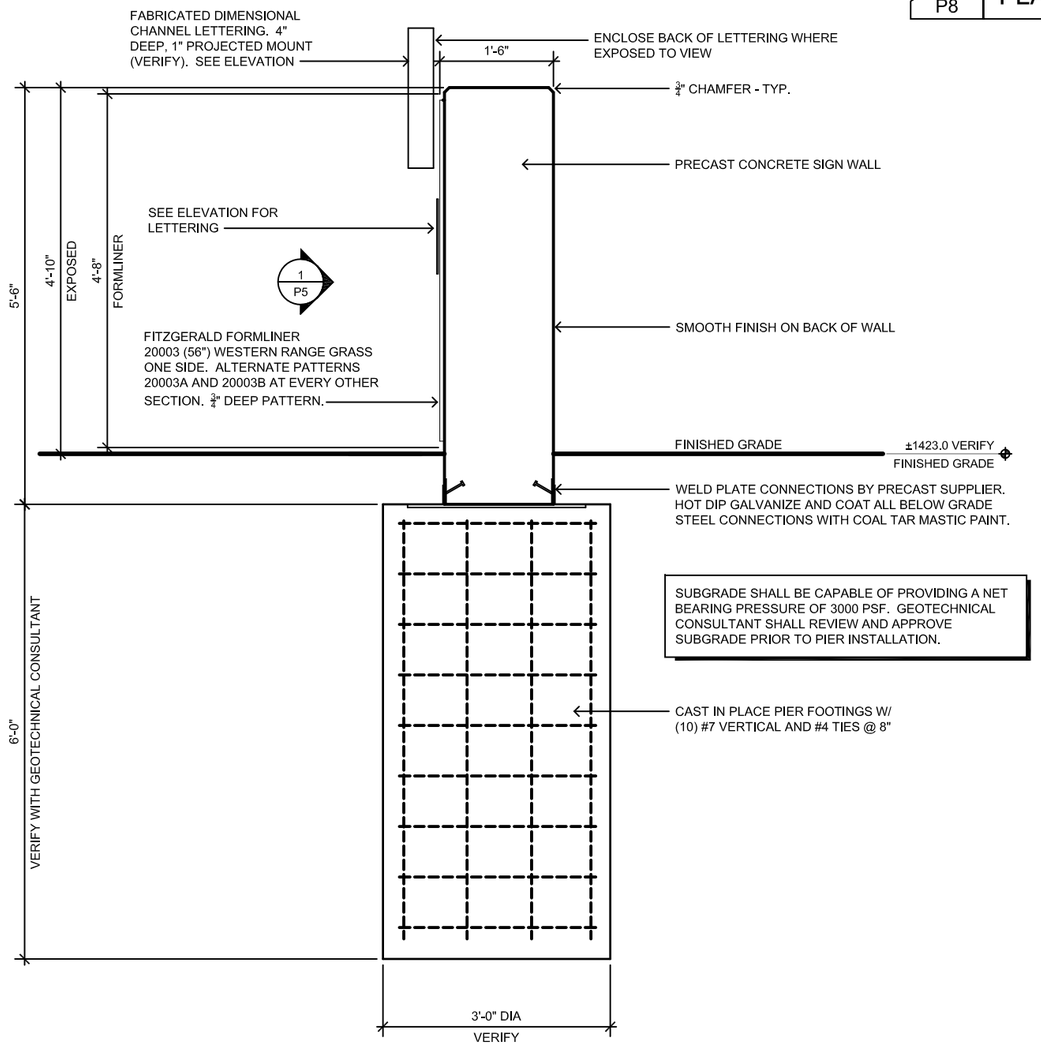
DETAIL AT TOP OF MESSAGE BOARD OPENING

3 P8 | FLASHING DETAIL — SCALE: 3" = 1'-0"



DETAIL AT SIDES AND BOTTOM OF MESSAGE BOARD OPENING

4 P8 | FLASHING DETAIL — SCALE: 3" = 1'-0"



1 P8 | SIGN WALL SECTION — SCALE: 1/2" = 1'-0"

2 P8 | FOUNDATION SECTION — SCALE: 1/2" = 1'-0"

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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P8
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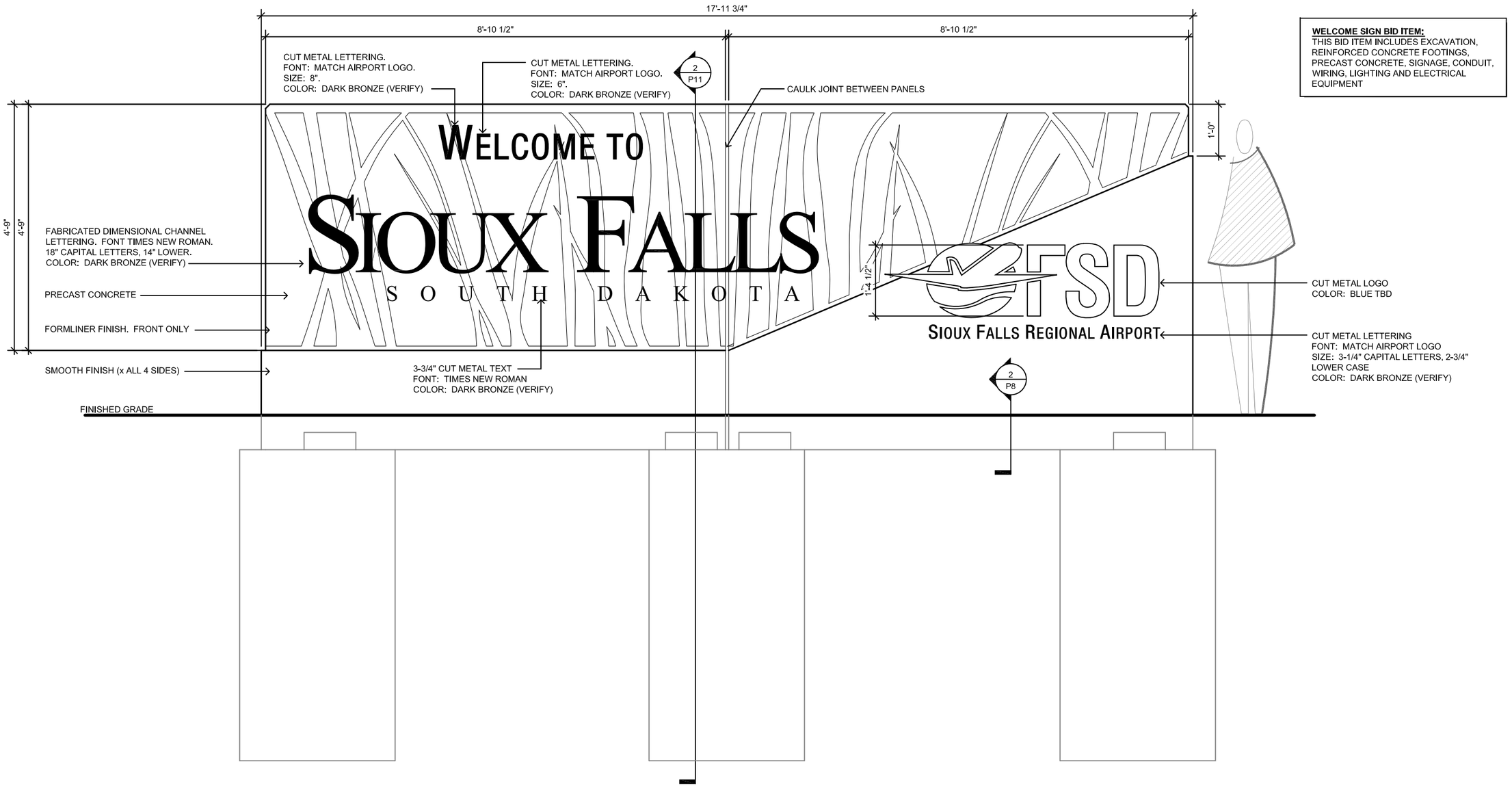
P15



WELCOME SIGN BID ITEM:
THIS BID ITEM INCLUDES EXCAVATION, REINFORCED CONCRETE FOOTINGS, PRECAST CONCRETE, SIGNAGE, CONDUIT, WIRING, LIGHTING AND ELECTRICAL EQUIPMENT

ALTERNATE #2

1 / P9 WELCOME SIGN ELEVATION SCALE: 1/2" = 1'-0"

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SIOUX FALLS, SOUTH DAKOTA

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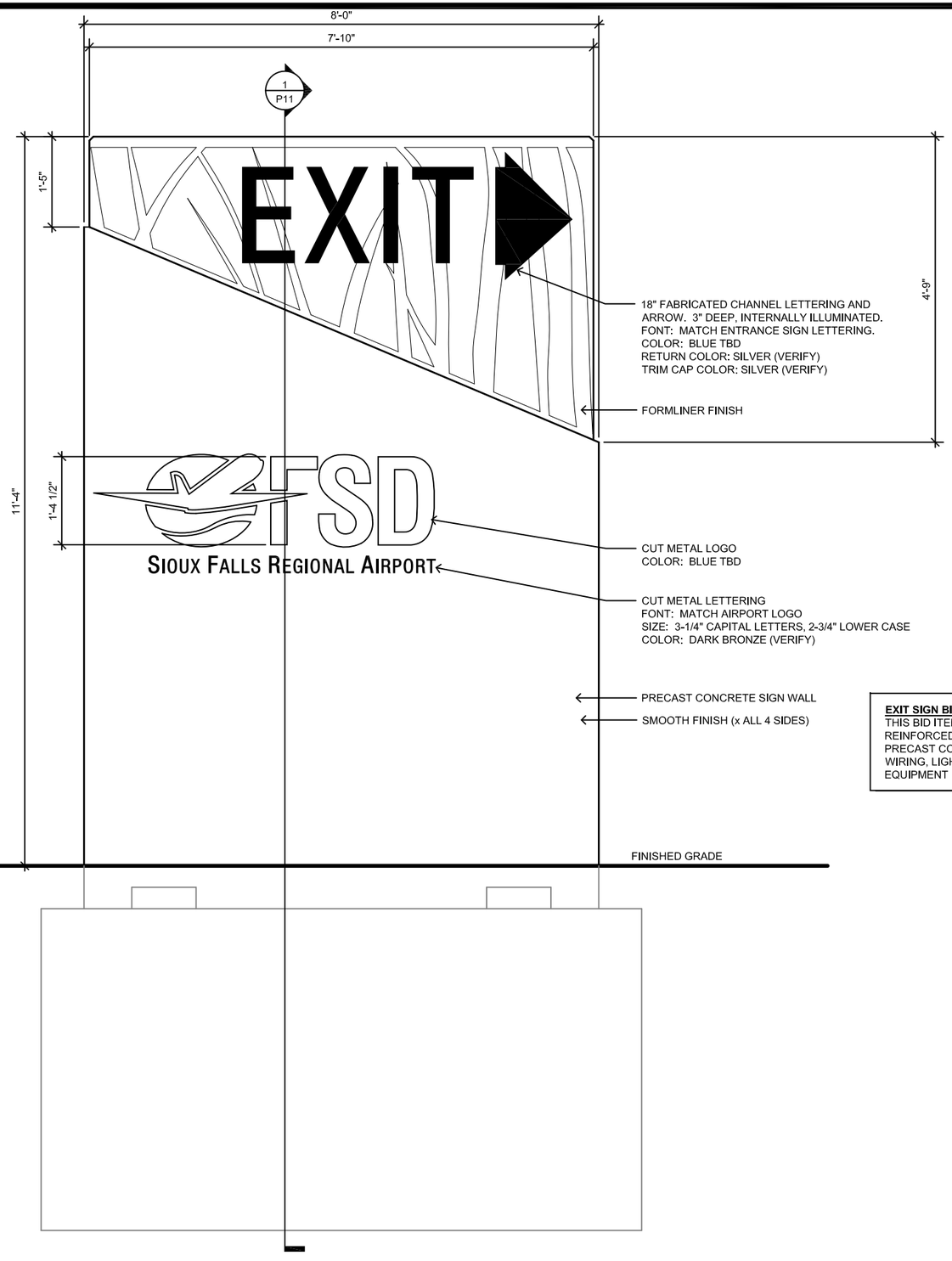
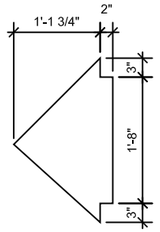
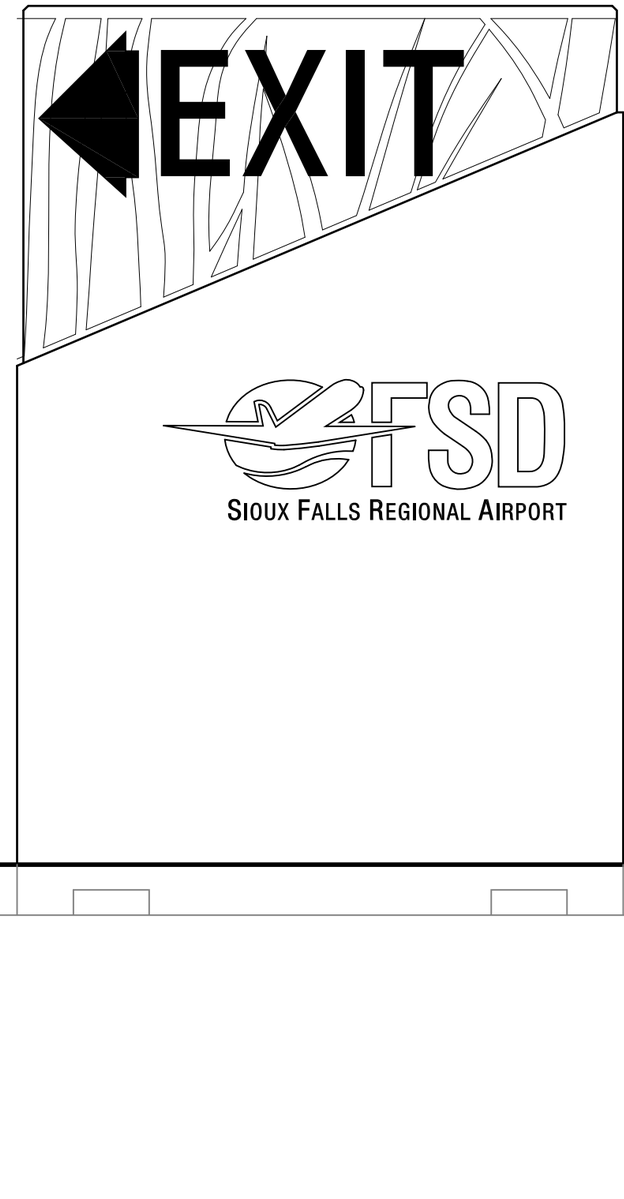




ARROW DETAIL

EXIT SIGN BID ITEM:
THIS BID ITEM INCLUDES EXCAVATION, REINFORCED CONCRETE FOOTINGS, PRECAST CONCRETE, SIGNAGE, CONDUIT, WIRING, LIGHTING AND ELECTRICAL EQUIPMENT

1 P10 EXIT SIGN SOUTH ELEVATION SCALE: 1/2" = 1'-0"



2 P10 EXIT SIGN NORTH ELEVATION SCALE: 1/2" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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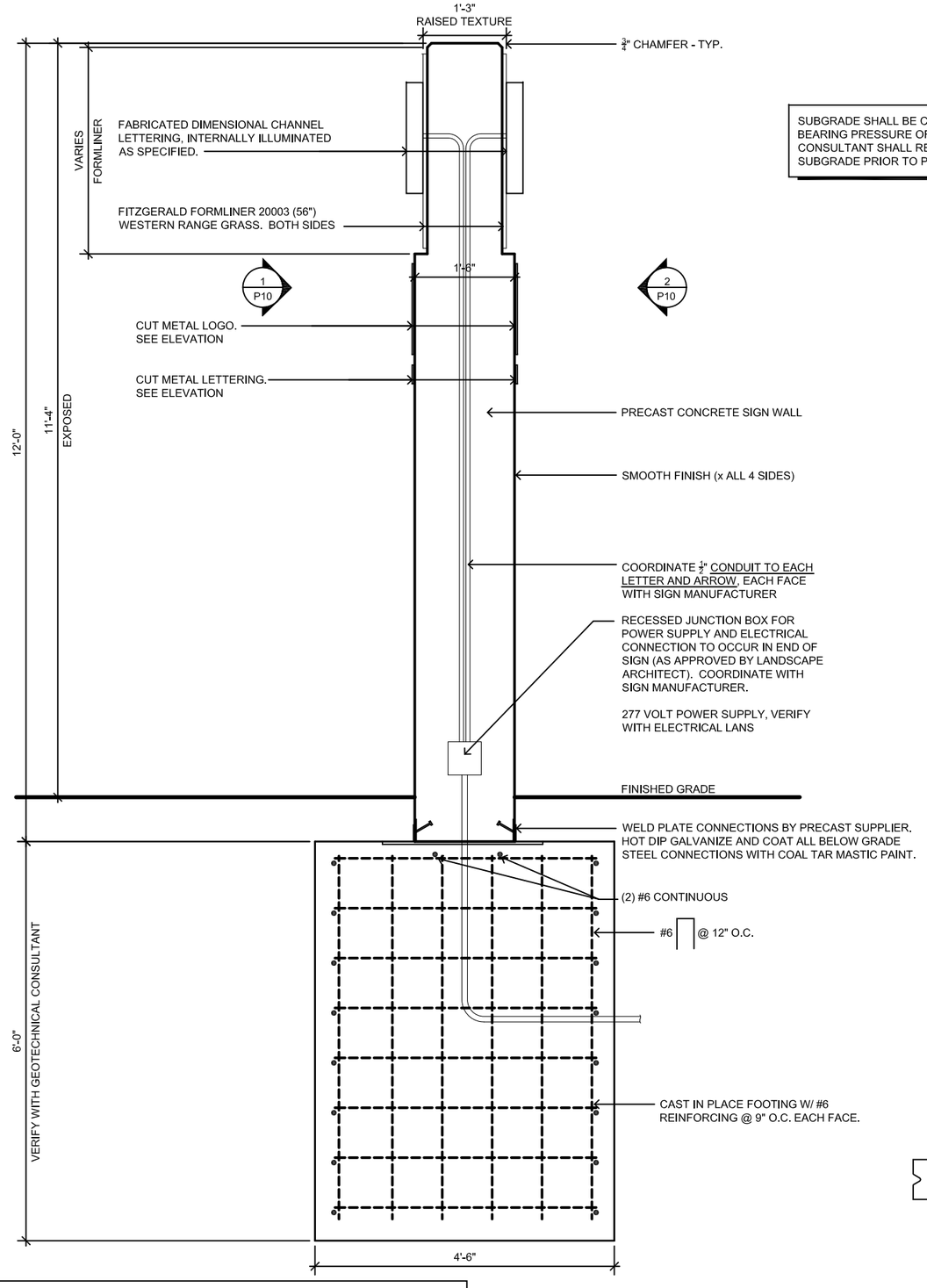
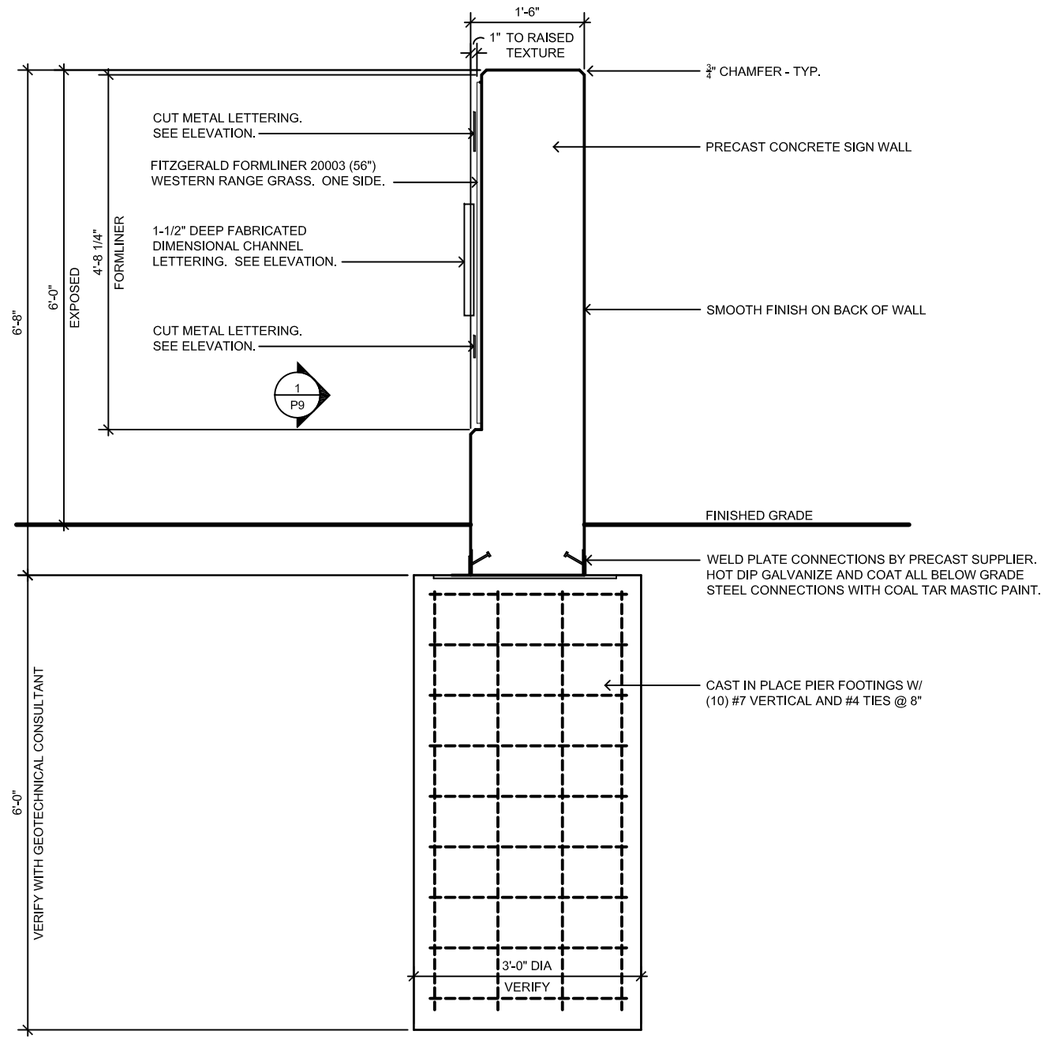
P10
OF
P15



1 P11 EXIT SIGN SECTION SCALE: 1/2" = 1'-0"

SUBGRADE SHALL BE CAPABLE OF PROVIDING A NET BEARING PRESSURE OF 3000 PSF. GEOTECHNICAL CONSULTANT SHALL REVIEW AND APPROVE SUBGRADE PRIOR TO PIER INSTALLATION.



2 P11 WELCOME SIGN SECTION SCALE: 1/2" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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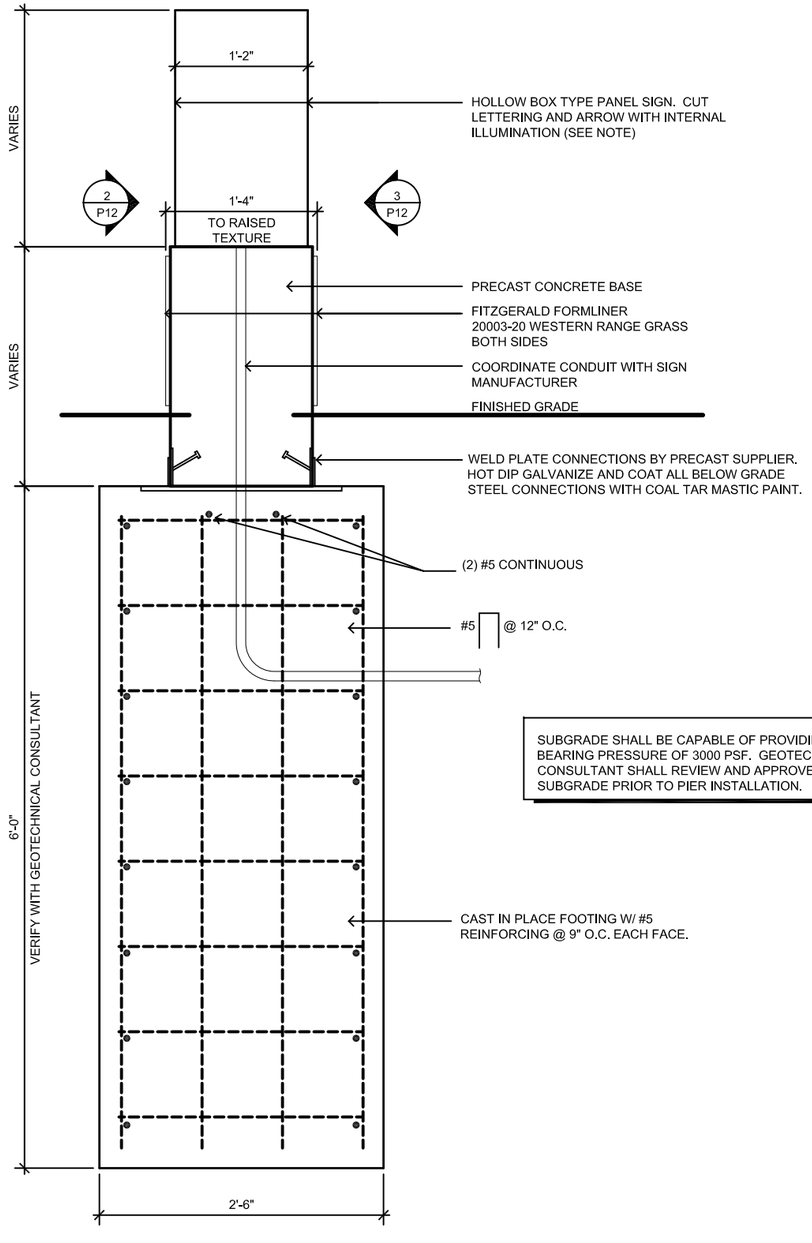
P11
OF
P15

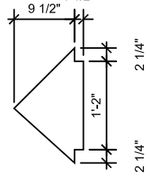


SUBGRADE SHALL BE CAPABLE OF PROVIDING A NET BEARING PRESSURE OF 3000 PSF. GEOTECHNICAL CONSULTANT SHALL REVIEW AND APPROVE SUBGRADE PRIOR TO PIER INSTALLATION.

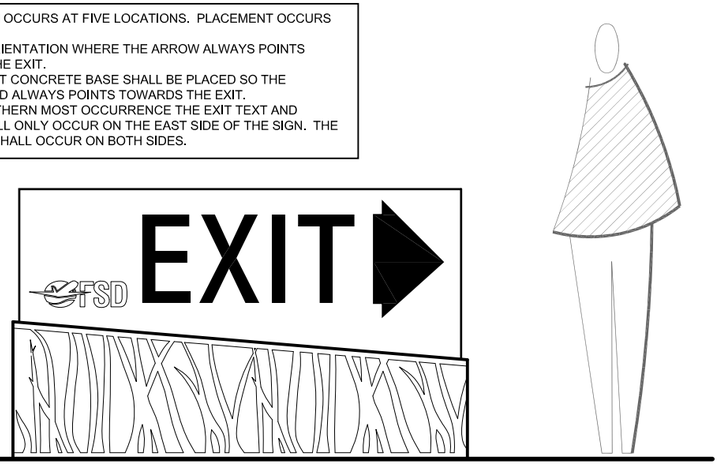
1 P12 — PRECAST WALL SECTION — SCALE: 3/4" = 1'-0"

NOTE: THIS SIGN OCCURS AT FIVE LOCATIONS. PLACEMENT OCCURS AS FOLLOWS:

- MAINTAIN ORIENTATION WHERE THE ARROW ALWAYS POINTS TOWARDS THE EXIT.
- THE PRECAST CONCRETE BASE SHALL BE PLACED SO THE TAPERED END ALWAYS POINTS TOWARDS THE EXIT.
- AT THE SOUTHERN MOST OCCURRENCE THE EXIT TEXT AND ARROW SHALL ONLY OCCUR ON THE EAST SIDE OF THE SIGN. THE 'FSD' LOGO SHALL OCCUR ON BOTH SIDES.

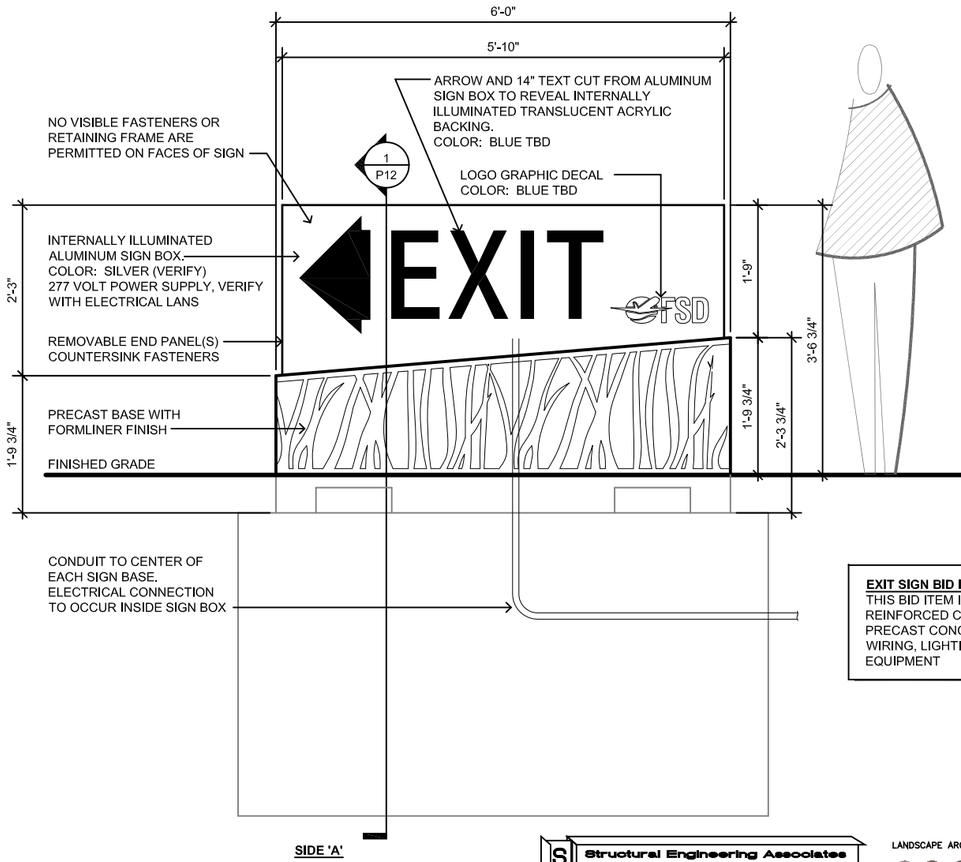


ARROW DETAIL



SIDE 'B'

3 P12 — SMALL EXIT SIGN ELEVATION — SCALE: 1/2" = 1'-0"



EXIT SIGN BID ITEM:
THIS BID ITEM INCLUDES EXCAVATION, REINFORCED CONCRETE FOOTINGS, PRECAST CONCRETE, SIGNAGE, CONDUIT, WIRING, LIGHTING AND ELECTRICAL EQUIPMENT

SIDE 'A'

2 P12 — SMALL EXIT SIGN ELEVATION — SCALE: 1/2" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE DETAILS

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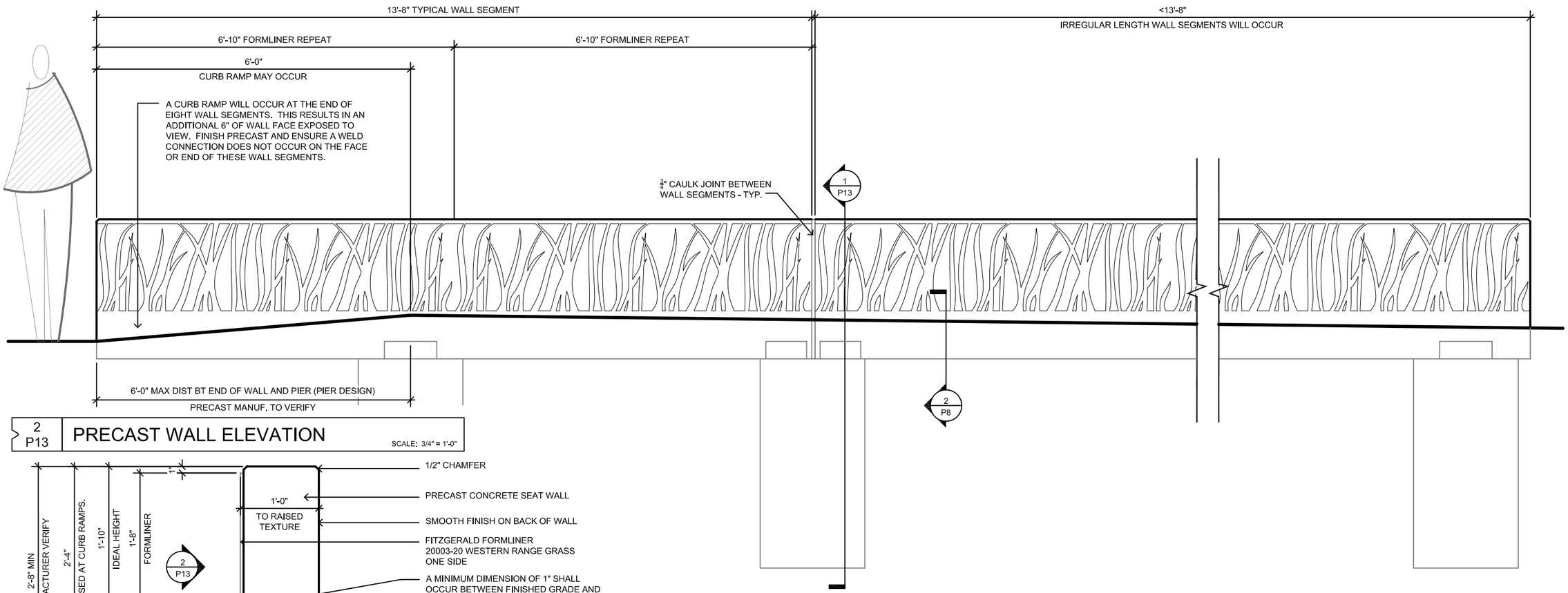
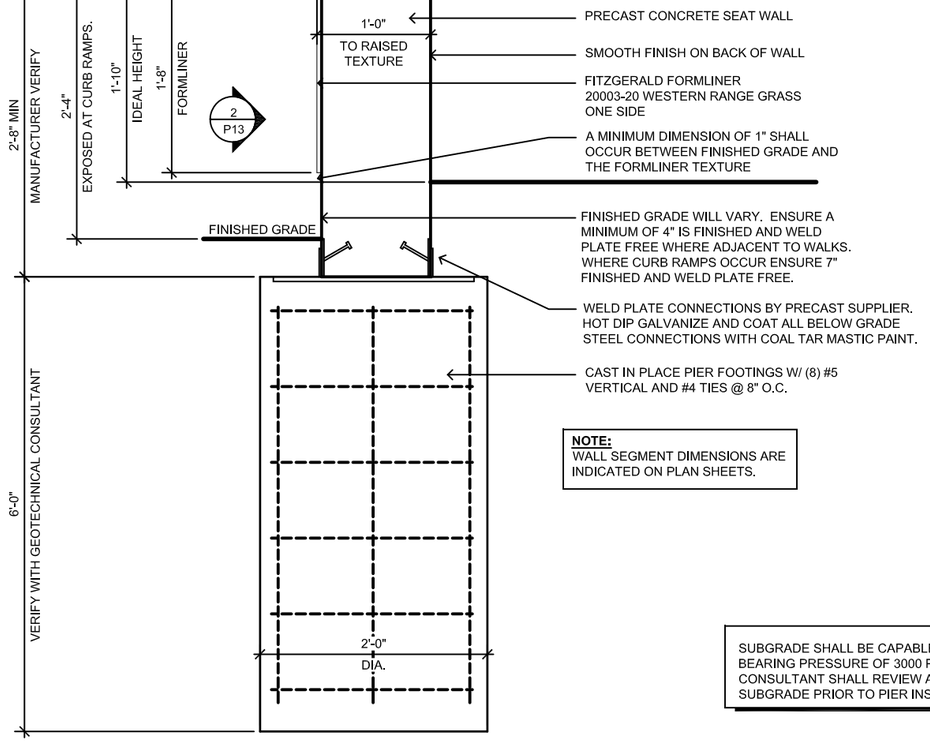


2 P13 PRECAST WALL ELEVATION

SCALE: 3/4" = 1'-0"



NOTE:
WALL SEGMENT DIMENSIONS ARE INDICATED ON PLAN SHEETS.

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1 P13 PRECAST WALL SECTION

SCALE: 3/4" = 1'-0"

TERMINAL PARKING & ACCESS IMPROVEMENTS

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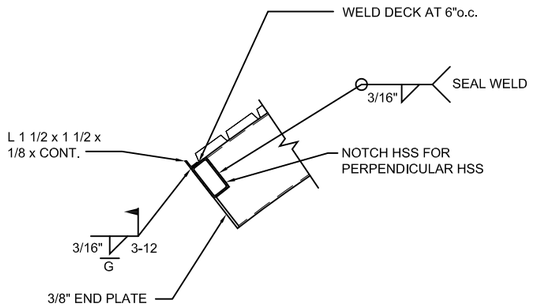
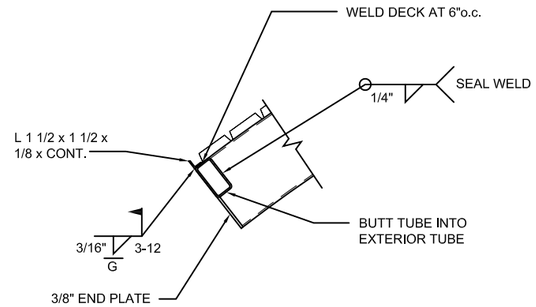
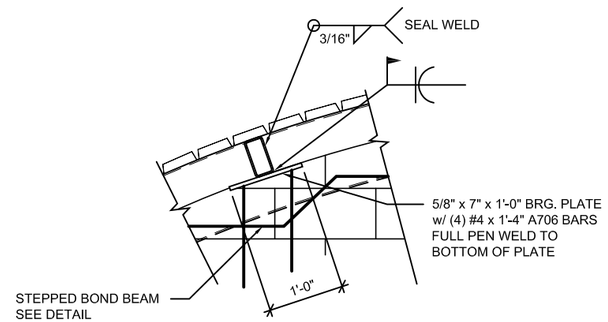


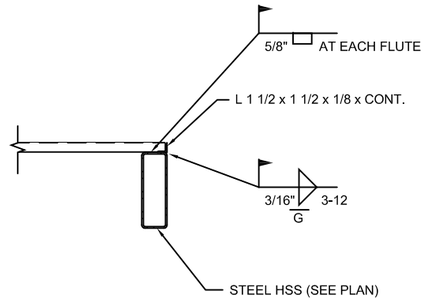
DETAIL 'A'



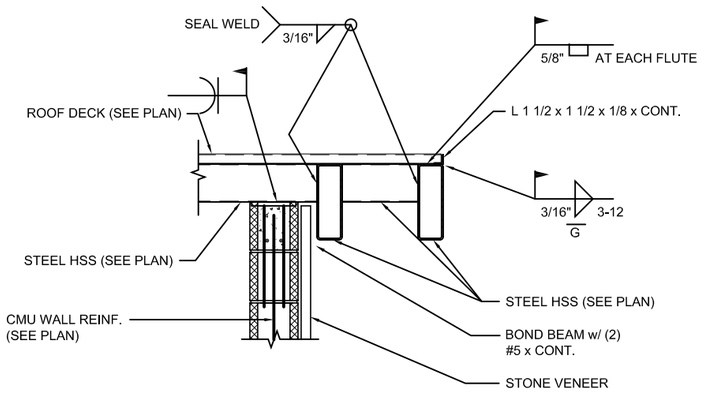
DETAIL 'B'



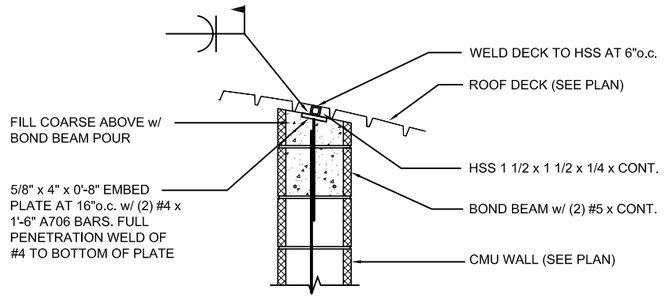
DETAIL 'C'



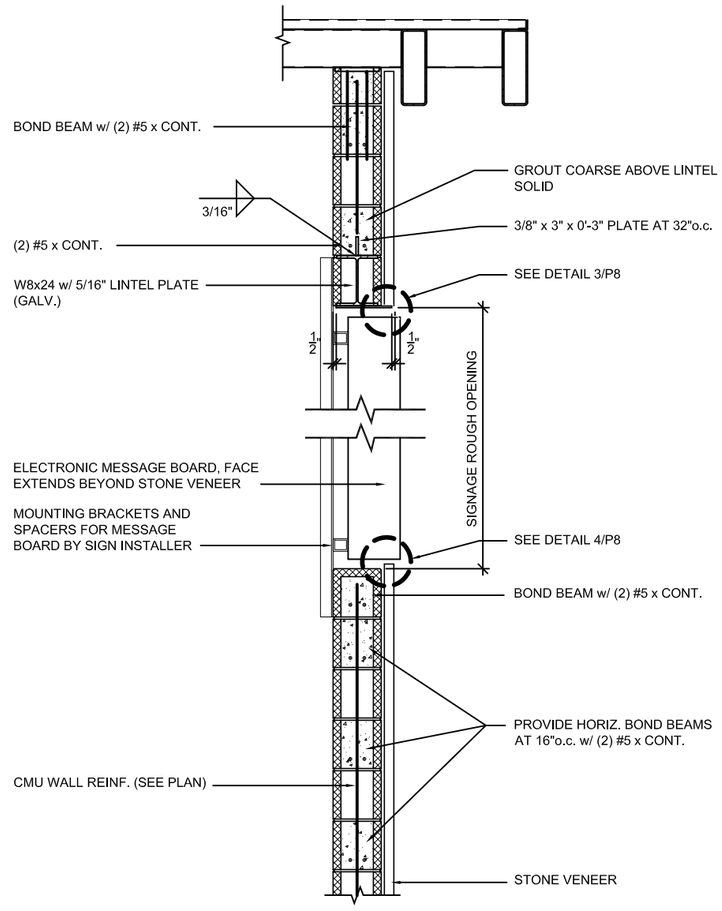
DETAIL 'D'



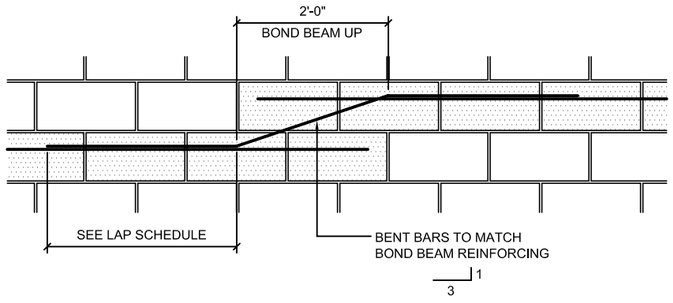
DETAIL 'E'



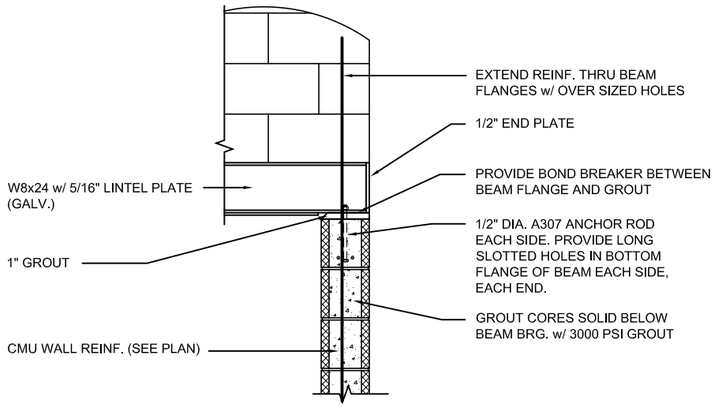
DETAIL 'F'



4 P14 ROOF FRAMING DETAILS A - F SCALE: 1/2" = 1'-0"



1 P14 TYPICAL BOND BEAM STEP SCALE: 1/2" = 1'-0"



2 P14 TYPICAL BEAM BEARING SCALE: 1/2" = 1'-0"

3 P14 TYPICAL FRAMING OPENING SCALE: 1/2" = 1'-0"

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TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ARCHITECTURAL SIGNAGE DETAILS

DESIGNED By: CWK
DRAWN By: CWK
CHECKED By: CWK
REVISIONS:
ACAD FILE:
DATE: 03/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
P14
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STRUCTURAL GENERAL NOTES

1. INTERNATIONAL BUILDING CODE, 2009

2. BUILDING CODE FOR THE CITY OF SIOUX FALLS, SD

DESIGN LOADS

1. ROOF LOADS
   BASIC LIVE LOAD - 20 PSF
   GROUND SNOW LOAD Pg = 40 PSF
   SNOW EXPOSURE FACTOR Ce = 1.0
   OCCUPANCY CATEGORY II (ASCE 7-05)
   SNOW LOAD IMPORTANCE FACTOR I = 1.0
   THERMAL FACTOR Ct = 1.2 FOR UNHEATED STRUCTURES AND STRUCTURES INTENTIONALLY KEPT BELOW FREEZING.
   FLAT ROOF SNOW LOAD = PgX0.7CeXIxCt = Pf = 34 PSF
   PLUS APPLICABLE SLIDING, DRIFTING AND UNBALANCED SNOW LOAD INCREASES

2. CONCENTRATED LOADS AS SHOWN IN IBC TABLE 1607.1 SHALL BE ADDED TO THE UNIFORM LOADS SHOWN ABOVE AS APPROPRIATE FOR ITS USE FOR MEMBERS DESIGNED BY SUPPLIERS.

3. WIND LOADS
   BASIC WIND SPEED = 90 MPH
   OCCUPANCY CATEGORY II (ASCE 7-05)
   WIND LOAD IMPORTANCE FACTOR = 1.0
   WIND EXPOSURE = C

4. SEISMIC LATERAL LOADS
   OCCUPANCY CATEGORY II (ASCE 7-05)
   SEISMIC IMPORTANCE FACTOR 1.0
   MAPPED SPECTRAL RESPONSE COEFFICIENTS
   SS = 0.11g FOR 0.2 SEC
   S1 = 0.04g FOR 1.0 SEC
   SITE CLASS D STIFF SOIL Fa = 1.6 Fv=2.4
   SDS = 0.11g X 1.6x 2/3 = 0.1173g FOR 0.2 SEC
   SD1 = 0.04g X 2.4 X 2/3 = 0.0640g FOR 1.0 SEC

   SEISMIC DESIGN CATEGORY A

MATERIALS GRADES AND STRENGTHS

1. CAST-IN-PLACE CONCRETE
   FOOTINGS AND FOUNDATIONS - F'c = 3000 PSI AT 28 DAYS
   GROUT - NON METALLIC, SHRINK RESISTANT WITH F'c = 8000 PSI AT 28 DAYS

2. MASONRY
   CONCRETE MASONRY UNITS - ASTM C90 TYPE "N-1"
   CONCRETE MASONRY MORTAR - TYPE S
   MASONRY CORE FILL AND BOND BEAMS - F'c = 3000 PSI AT 28 DAYS

3. REINFORCING STEEL
   BARS - ASTM A615 (GRADE 60)
   WELDABLE BARS - A706 Fy=60ksi (GRADE 60)
   WELDED DEFORMED BAR ANCHORS - LENTON OR APPROVED EQUAL
   WELDED WIRE FABRIC - ASTM A185

4. STRUCTURAL STEEL
   WIDE FLANGE SHAPES - ASTM A992 (Fy=50 KSI)
   PLATES AND OTHER SHAPES - ASTM A36 (Fy=36 KSI)
   STRUCTURAL TUBES - ASTM A500, GRADE B (Fy=46 KSI)
   ANCHOR BOLTS/RODS - ASTM F1554-S1 GR 55 YELLOW (WELDABLE)TYPICAL
   ASTM F1554 GR 36 BLUE (AT NOTED LOCATIONS)
   ASTM A307 (AT NOTED LOCATIONS)
   ASTM A36 THREADED RODS(AT NOTED LOCATIONS)
   EXPANSION BOLTS - HILTI KWIK BOLT 3
   HEADED SHEAR CONNECTOR STUDS - ASTM A108 (Fu = 58 KSI MIN)

GENERAL

1. THE INFORMATION SHOWN ON THE STRUCTURAL DRAWINGS IS NOT TO BE SCALED, AS THE ITEMS SHOWN MAY NOT BE TO SCALE FOR THE SPECIFIC LOCATION.

2. NO OPENINGS OR SLEEVES SHALL BE CUT OR PROVIDED IN WALLS OR FLOOR CONSTRUCTION WITHOUT APPROVAL BY THE A/E.

3. EXAMINE ARCHITECTURAL, MECHANICAL, PLUMBING AND ELECTRICAL DRAWINGS TO DETERMINE LOCATION AND DIMENSIONS OF CHASES, INSERTS, OPENINGS, SLEEVES, REVEALS, DEPRESSIONS AND OTHER PROJECT REQUIREMENTS NOT SHOWN ON STRUCTURAL DRAWINGS.

4. BEFORE FABRICATION AND ERECTION OF ANY MATERIALS, FIELD VERIFY ALL EXISTING ELEVATIONS, DIMENSIONS AND CONDITIONS AS SHOWN ON THE DRAWINGS AND REPORT ANY DISCREPANCIES TO THE ARCHITECT/ENGINEER AT ONCE FOR RESOLUTION.

5. STRUCTURAL MEMBERS INCLUDING JOISTS, SLABS, BEAMS, TRUSSES, COLUMNS AND WALLS ARE DESIGNED FOR "IN PLACE" LOADS. CONTRACTOR IS RESPONSIBLE FOR BRACING, WITHOUT OVERSTRESSING, ALL STRUCTURAL ELEMENTS (AS REQUIRED AT ANY STAGE OF CONSTRUCTION) UNTIL COMPLETION OF THIS PROJECT.

FOUNDATIONS

1. FOOTINGS HAVE BEEN DESIGNED FOR A MAXIMUM SOIL BEARING PRESSURE OF 3000 PSF. REFERENCE AMERICAN ENGINEERING TESTING, INC. REPORT NO. 32-00250 DATED 12.14.2010. IF THE SOIL AT THE FOOTING ELEVATIONS SHOWN IS OF QUESTIONABLE BEARING VALUE, NOTIFY THE ARCHITECT/ ENGINEER AT ONCE FOR RESOLUTION.

2. TESTING SERVICE MUST INSPECT AND APPROVE SUBGRADES AND FILL LAYERS BEFORE FURTHER CONSTRUCTION WORK IS PERFORMED THEREON. NOTIFY TESTING SERVICE PRIOR TO PROCEEDING WITH PLACEMENT OF FOOTINGS, FILL, OR OTHER CONSTRUCTION OVER SUBGRADES AND FILL.

3. WATER SHALL NOT BE PERMITTED TO POND IN FOOTING EXCAVATION. KEEP EXCAVATION DRY. FAILURE TO DO SO WILL BE CAUSE FOR REQUIRING CONTRACTOR TO REMOVE WATER DAMAGED SOILS AND REPLACE WITH CONTROLLED FILL AS DIRECTED.

4. SHOULD ANY QUESTIONABLE CONDITIONS BE ENCOUNTERED DURING EXCAVATION, NOTIFY A/E IMMEDIATELY. FOOTING ELEVATIONS ARE SUBJECT TO CHANGE DEPENDING ON SOIL CONDITIONS ENCOUNTERED.

5. REMOVE ANY ABANDONED SEWER OR SERVICE LINE ENCOUNTERED DURING EXCAVATION WITHIN THE BUILDING LINES. SHOULD SUCH LINES BE FOUND BELOW OR ADJACENT TO FOOTING LOCATIONS, NOTIFY THE A/E.

6. ALL FOOTINGS SHALL BE CENTERED UNDER WALLS. NO OFFSETS SHALL BE PERMITTED.

7. WHERE FILL MATERIAL IS PLACED ON BOTH SIDES OF GRADE BEAMS OR WALLS, IT SHALL BE PLACED IN LAYERS ALTERNATELY ON OPPOSITE SIDES TO MAINTAIN LEVELS THAT WILL AVOID DISPLACEMENT OF, OR DAMAGE TO, THE WALLS OR BEAMS.

8. WHERE FILL MATERIAL IS PLACED ON ONE SIDE OF A WALL, THE WALL SHALL BE ADEQUATELY SHORED AND BRACED OR THE MATERIAL SHALL NOT BE PLACED UNTIL SUPPORTING FLOOR SLABS HAVE BEEN POURED AND SET.

9. NO FILL OR BACKFILL SHALL BE "SETTLED" BY THE USE OF WATER.

10. PROVIDE A MINIMUM SIX INCHES OF DRAINAGE FILL BELOW ALL INTERIOR FLOOR SLABS.

11. IF CONSTRUCTION IS ANTICIPATED DURING COLD WEATHER, ALL FOUNDATIONS AND SLABS ARE TO BE PROTECTED FROM FROST PENETRATION UNTIL PROJECT COMPLETION. CONCRETE CAN NOT BE PLACED ON FROZEN SUB-GRADES. FROST CAN NOT BE ALLOWED TO PENETRATE BELOW THE FOOTINGS. IF FLOOR SLAB SUB-GRADES FREEZE, THE FROZEN SOILS ARE TO BE REMOVED AND REPLACED, OR COMPLETELY THAWED AND RE-COMPACTED, PRIOR TO PLACEMENT OF THE FLOOR SLAB.

CONCRETE

1. CODE FOR REINFORCED CONCRETE DESIGN AND CONSTRUCTION IS ACI 318, LATEST EDITION.

2. ARRANGEMENT AND BENDING OF REINFORCING STEEL SHALL BE IN ACCORDANCE WITH ACI DETAILING MANUAL, LATEST EDITION

3. REINFORCING STEEL SHALL BE NEW DEFORMED BARS

4. ALL REINFORCING BARS SHALL BE LAP SPLICED WITH CLASS B TENSION LAP SPLICES.

5. CONCRETE COVER TO REINFORCING STEEL, UNO, SHALL BE AS FOLLOWS:

   SURFACES CAST AGAINST EARTH - 3"

   FORMED SURFACES IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:
   #6 BAR OR LARGER - 2", #5 BAR OR SMALLER - 1-1/2"

   FORMED SURFACES NOT IN CONTACT WITH EARTH OR EXPOSED TO WEATHER:
   WALLS, SLABS, JOISTS - 1", BEAMS, COLUMNS - 1-1/2"

6. DETAIL AND PROVIDE SUITABLE WIRE SPACERS, CHAIRS, TIES, ETC., FOR SUPPORTING REINFORCING STEEL IN THE PROPER POSITION WHILE PLACING CONCRETE.

7. ALL CHAIRS SUPPORTED BY GRADE SHALL INCLUDE SAND PLATES.

8. BAR SUPPORTS WHICH COME IN CONTACT WITH EXPOSED SURFACES SHALL HAVE PLASTIC OR RUBBER TIPS OR BE STAINLESS STEEL.

9. PROVIDE HOOKED DOWELS OF SAME SIZE AND SPACING AS VERTICAL OR COLUMN REINFORCING AT THE FOUNDATION, UNLESS NOTED OTHERWISE. ALL HOOKED DOWELS SHALL BE TIED IN PLACE PRIOR TO CONCRETE PLACEMENT.

10. PROVIDE BENT CORNER BARS TO MATCH AND LAP WITH HORIZONTAL BARS AT CORNERS AND INTERSECTIONS OF WALLS, BEAMS, BOND BEAMS, AND FOOTINGS.

11. WHERE CONSTRUCTION JOINTS ARE NOT SHOWN, OR WHEN ALTERNATE LOCATIONS ARE PROPOSED, DRAWINGS SHOWING LOCATION OF CONSTRUCTION AND CONTROL JOINTS AND PLACING SEQUENCE SHALL BE SUBMITTED FOR APPROVAL PRIOR TO PREPARATION OF THE REINFORCING STEEL SHOP DRAWINGS.

12. HORIZONTAL CONSTRUCTION JOINTS ARE NOT PERMITTED IN CONCRETE MEMBERS UNLESS SHOWN ON THE DRAWINGS OR APPROVED IN ADVANCE. VERTICAL CONSTRUCTION JOINTS OR BULKHEADS SHALL BE MADE AT MIDSPAN OR POINTS OF MINIMUM SHEAR.

13. VERIFY LOCATION OF OPENINGS SHOWN THROUGH CONCRETE SLABS OR WALLS AND COORDINATE ANY ADDITIONAL REQUIRED OPENINGS WITH OTHER TRADES AND THE ARCHITECT/ENGINEER.

14. CONCRETE EXPOSED TO FREEZING AND THAWING SHALL CONTAIN 5-7% ENTRAINED AIR.

15. ALUMINUM CONDUIT OR PIPING MAY NOT BE EMBEDDED IN ANY CONCRETE.

16. CALCIUM CHLORIDE IS NOT PERMITTED IN ANY CONCRETE ADMIXTURES.

17. SUBMIT MIX DESIGN TO ENGINEER/ARCHITECT FOR APPROVAL PRIOR TO PLACING ANY CONCRETE. MIX DESIGNS SHALL BE CERTIFIED BY A LICENSED ENGINEER IN THE STATE OF SOUTH DAKOTA.

MASONRY

1. CONSTRUCT MASONRY TO IBC REQUIREMENTS

2. PROVIDE VERTICAL REINFORCEMENT IN EXTERIOR MASONRY WALLS: # 5 @ 16 INCHES O.C., UNO.

3. DOWEL VERTICAL WALL REINFORCING TO FOUNDATION, FOOTING, OR THICKENED SLAB WITH EITHER A HOOKED BAR LAPPED WITH VERTICAL STEEL OR A VERTICAL BAR LAPPED WITH VERTICAL CMU WALL REINF AND CONCRETE WALL REINFORCING.

4. REINFORCE EACH SIDE OF ALL OPENINGS, CORNERS IN MASONRY WALLS, AND ENDS OF ALL MASONRY WALLS WITH (1)#5 VERTICAL, FULL HEIGHT, IN TWO ADJACENT CORES.

5. REINFORCE ALL BOND BEAMS WITH (2)#5 BOTTOM, CONTINUOUS. REINFORCING TO BEND 2'-0" AROUND ALL CORNERS OR USE 4'-0" CORNER BARS.

6. SHOP WELD ALL LINTEL UNITS.

7. PROVIDE WELDED WIRE JOINT REINFORCING IN ALL MASONRY WALLS AT 8" O.C. AT STACK BOND.

8. PROVIDE REINFORCING BARS AT LOCATIONS INDICATED ON THE DRAWINGS. LAP 48 BAR DIAMETERS AT SPLICES IN VERTICAL WALL REINFORCING AND 48 BAR DIAMETERS ELSEWHERE UNLESS NOTED OTHERWISE.

9. GROUT CORES IN 5'-0" MAXIMUM LIFTS UNLESS CLEAN-OUTS ARE PROVIDED, IN WHICH CASE 8'-0" MAXIMUM LIFTS MAY BE USED.

10. TIE VERTICAL REINFORCING TO JOINT REINFORCING AT 32" ON CENTER VERTICALLY TO MAINTAIN POSITIONING WHILE GROUTING.

11. PROVIDE (1)#5 VERTICAL BELOW BEAM AND LINTEL BEARINGS AND GROUT CORE FULL HEIGHT. BEARING DISTANCE SHALL BE A MINIMUM OF 8". BEAM OR LINTEL SHALL BE SET IN GROUT, 1/2" MINIMUM DEPTH. PROVIDE (1)#5 VERTICAL, FROM TOP OF FOUNDATION TO TOP OF WALL, IN TWO CORES ADJACENT TO BEAM AND LINTEL BEARINGS AND GROUT CORE FULL HEIGHT.

12. ALL LINTELS AND LOOSE BRICK ANGLES TO BE TEMPORARILY SHORED UNTIL MASONRY HAS HARDENED.

13. CMU CORES CONTAINING VERTICAL REINFORCING SHALL BE GROUTED SOLID WITH CORE FILL CONCRETE GROUT. FILLING CORES WITH MORTAR IS NOT ACCEPTABLE.

14. STEEL COLUMNS EMBEDDED WITHIN CMU WALLS SHALL BE WRAPPED WITH TWO LAYERS OF 15# BUILDING PAPER TO BREAK THE BOND BETWEEN THE STEEL COLUMN AND THE CMU AND MORTAR. CARE IS TO BE TAKEN TO ALLOW FOR DIFFERENTIAL MOVEMENT OF THE STEEL AND CMU.

15. PROVIDE SPECIAL BLOCK TYPES WHERE REQUIRED FOR CORNERS, CONTROL JOINTS, HEADERS, LINTELS W/(2)#5 MINIMUM (UNO), AND OTHER SPECIAL CONDITIONS WHETHER OR NOT SPECIFICALLY INDICATED ON THE DRAWINGS.

16. MASONRY STRENGTH NOTES:

    F'm = 1500 PSI, EXCEPT WHERE NOTED OTHERWISE ON DRAWINGS. CONTRACTOR SHALL SUBMIT CERTIFICATION AND TESTING RESULTS AS REQUIRED TO ESTABLISH F'm BASED ON THE UNIT STRENGTH METHOD. MINIMUM COMPRESSIVE STRENGTH OF MASONRY UNITS IS 1900 PSI PER IBC TABLE 2105.2.2.1.2 FOR TYPE M OR S MORTAR. SUBMITTALS SHALL BE REVIEWED AND APPROVED PRIOR TO MASONRY CONSTRUCTION STARTING.

17. SUBMIT MIX DESIGN OF CORE FILL CONCRETE GROUT AND BOND BEAM FILL CONCRETE GROUT TO ENGINEER/ARCHITECT FOR APPROVAL PRIOR TO PLACING ANY CONCRETE.

18. FILL CMU LINTELS SOLID WITH 3,000 PSI CONCRETE (3/8" MAXIMUM AGGREGATE).

STEEL FRAMING

1. TO AVOID UNDESIRABLE STRESSES IN PLATES OR THEIR ANCHORS, ALL WELDS SHALL BE MADE IN SINGLE PASSES IF APPLICABLE, SYMMETRICALLY AROUND THE PLATE. WHEN MULTIPLE PASSES ARE REQUIRED SUFFICIENT TIME SHALL BE ALLOWED BETWEEN PASSES FOR THE HEAT TO DISSIPATE.

2. LATEST AISC MANUAL AND SPECIFICATIONS APPLY.

3. WELDING ELECTRODES SHALL BE 70XX, UNO.

4. ALL WELDING AND TESTING OF WELDS SHALL BE IN ACCORDANCE WITH AMERICAN WELDING SOCIETY CODES AND RECOMMENDATIONS.

5. ALL WELDING SHALL BE BY WELDERS HOLDING VALID CERTIFICATES IN THE TYPE OF WELD REQUIRED.

6. ALL COMPLLETE-JOINT-PENETRATION WELDS SHALL BE ULTRASONICALLY TESTED BY AN INDEPENDENT TESTING LABORATORY.

7. ALL HIGH STRENGTH BOLTED CONNECTIONS SHALL BE TIGHTENED TO THE TENSIONS SPECIFIED IN TABLE 8.1 OF AISC SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS. TENSION MEASURING DEVICES SHALL BE USED TO CONFIRM BOLTS MEET THE REQUIREMENTS OF TABLE 8.1. MEASURING DEVICES SHALL INCLUDE LOAD INDICATING WASHERS OR ALTERNATE DESIGN BOLTS (TWIST-OFF BOLTS).

8. NOT ALL CONNECTIONS ARE DETAILED; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE INDICATED. CONTACT THE ENGINEER OR ARCHITECT PROMPTLY TO VERIFY THE DETAILS OF MEMBERS OR CONNECTIONS IN ANY SITUATION WHERE REQUIREMENTS ARE UNCLEAR. CONTRACTOR SHALL PROVIDE THE NECESSARY BRACING DURING ERECTION AND UNTIL ALL STEEL IS PLUMB AND SECURED.

9. FIELD CUTTING OR OTHER FIELD MODIFICATIONS TO STRUCTURAL STEEL SHALL NOT BE MADE WITHOUT SPECIFIC PRIOR WRITTEN APPROVAL OF THE ARCHITECT/ENGINEER.

10. ALL BEAM COPES MUST BE MADE TO A RADIUS (3/4" MINIMUM).

11. STRUCTURAL STEEL FRAMING SHALL BE TRUE AND PLUMB BEFORE CONNECTIONS ARE FINAL BOLTED OR WELDED.

12. INSTALL EXPANSION BOLTS IN ACCORDANCE WITH THE ICBO REPORT RECOMMENDATIONS.

13. AT LINTEL LOCATIONS NOTED PROVIDE BEAM WITH PLATE WELDED TO THE BOTTOM FLANGE. PLATE WIDTH TO BE 1 INCH LESS THAN NOMINAL WALL WIDTH (HELD BACK EQUALLY FROM EACH WALL FACE). WELD PLATE TO BEAM WITH 2 INCHES OF 3/16 INCH FILLET WELDS, EACH SIDE, SPACED AT 12 INCHES ON CENTER. PROVIDE 3/16" X 3" X 3" STEEL TABS ON TOP OF TOP FLANGE OF BEAM, SPACED AT 32" oc.

STEEL ROOF DECK

1. STEEL DECK INSTITUTE SPECIFICATIONS AND RECOMMENDATIONS APPLY.

2. ROOF DECK SHALL BE 1-1/2", 22 GA GALVANIZED WIDE RIB DECK, UNO.

3. DECK SHALL BE ERECTED AND WELDED TO SUPPORTING STEEL WITH 5/8" DIAMETER PUDDLE WELD WITH 36/7 WELD PATTERN (UNO) AND HAVE SIDE LAPS CONNECTED WITH NO. 10 TEK SCREWS AT MIDSPAN, UNO. WELD DECK TO PERIMETER CONTINUOUS DECK BEARING ANGLES WITH 5/8" DIAMETER PUDDLE WELDS AT 6" oc.

4. LAP ENDS A MINIMUM OF 2" WITH THE CENTERS OF THE LAPS LOCATED AT THE CENTERS OF THE SUPPORTS.

5. DECKING MUST BE CONTINUOUS OVER THREE SUPPORTS.

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SHEET NO.
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Standard Details - Index of Sheets

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Q2	SPECIAL	NORTH POND - OUTLET CONTROL STRUCTURE	Q17	634.01	TYPICAL APPLICATION - CONSTRUCTION OPERATIONS TYPICAL LANE CLOSURE
Q3	SPECIAL	JB#7 DETAIL - SPECIAL 8'X6' JUNCTION BOX	Q18	635.12	SIGN FOOTING FOR MAST ARM SIGNAL
Q4	SPECIAL	TYPICAL BOLLARD DETAIL	Q18	635.14	TRAFFIC SIGNAL TRANSFORMER BASE SIZE AND BOLT CIRCLE REQUIREMENTS
Q5	380.01	CONCRETE APPROACH PAVEMENT	Q19	635.17	CONTROLLER CABINET FOOTING FOR EIGHT PHASE SIGNAL
Q6	380.04 SP	TRANSVERSE CONTRACTION JOINT	Q19	635.31	JUNCTION BOX - TRAFFIC
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Q7	380.07	KEYWAY LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS	Q20	635.42	POWER FEED FROM GROUND POWER SOURCE
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Q8	380.09	LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS	Q21	635.52	STREET LIGHT FOOTING 45' TO 50' POLE HEIGHT
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Q9	380.14	TIE BAR INSTALLATION IN TRANSVERSE JOINT	Q22	635.70	JUNCTION BOX - LIGHTING
Q9	450.06	BEDDING AND BACKFILL FOR RCP B INSTALLATION	Q23	SPECIAL	SPILLOUT CONCRETE CURB AND GUTTER SECTION
Q10	450.13 SP	STORM SEWER BOOT CONNECTION	Q23	650.01	CONCRETE CURB AND GUTTER SECTION
Q11	460.01	STANDARD 6'-0" S.F. TYPE STORM SEWER INLET - FOR 15" TO 24" PIPES	Q24	650.04	CONCRETE FILLET SECTION AND CURB OPENING
Q12	460.02	STANDARD 10'-0" S.F. TYPE STORM SEWER INLET - FOR 18" TO 30" PIPES	Q25	651.02	SIDEWALK RAMPS AND DETECTABLE WARNING PANELS
Q13	460.05	STANDARD STORM SEWER JUNCTION BOX TYPE I	Q26	671.01	MANHOLE CASTING AND COVER ADJUSTMENT
Q13	460.07	STANDARD STORM SEWER INLET TYPE BI	Q27	900.01	CONCRETE THRUST BLOCK
Q14	460.08	2'X2' CATCH BASIN WITH SURFACE DRAIN	Q28	900.02	VALVE BOX ADJUSTMENT/REPLACEMENT
Q14	632.10	HEIGHTS AND LATERAL LOCATIONS OF SIGNS FOR TYPICAL URBAN INSTALLATION	Q29	900.06	HYDRANT CONNECTION
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Q16	633.10	PAVEMENT MARKINGS	Q30	950.12	TYPICAL SANITARY SEWER SERVICE
Q16	633.20	PAVEMENT MARKINGS ARROWS	Q31	950.13	CLEANOUT MANHOLE FRAME AND COVER

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SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011 DATE:
REVISIONS: BY: DATE:
BY: DATE:

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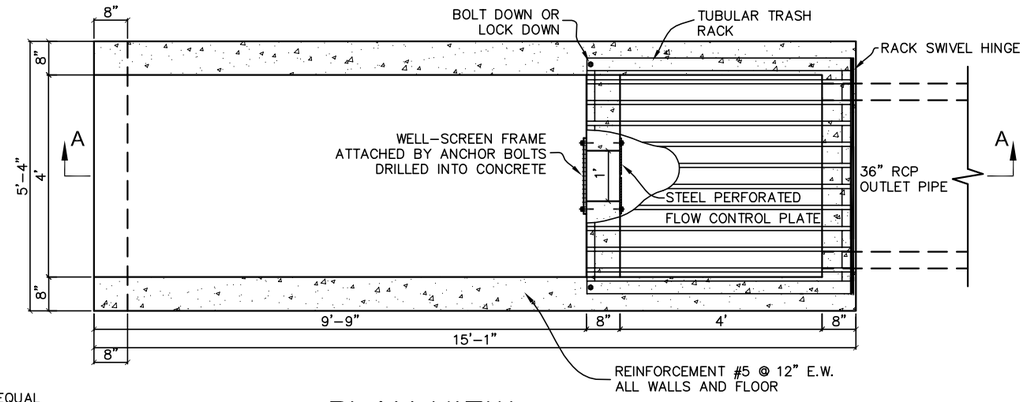
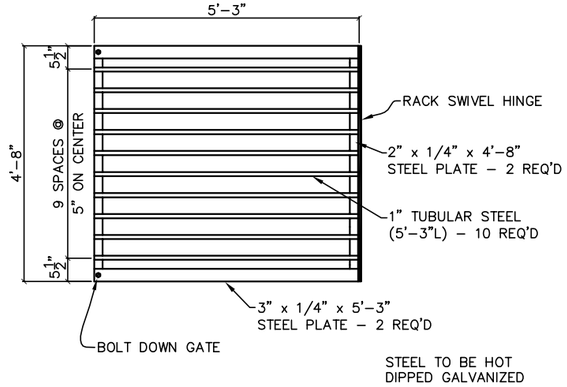
SHEET NO.
INDEX OF STANDARD DETAILS



PLAN VIEW

SCALE: 1/3" = 1'



TUBULAR TRASH RACK

WELL-SCREEN SPECIFICATIONS:

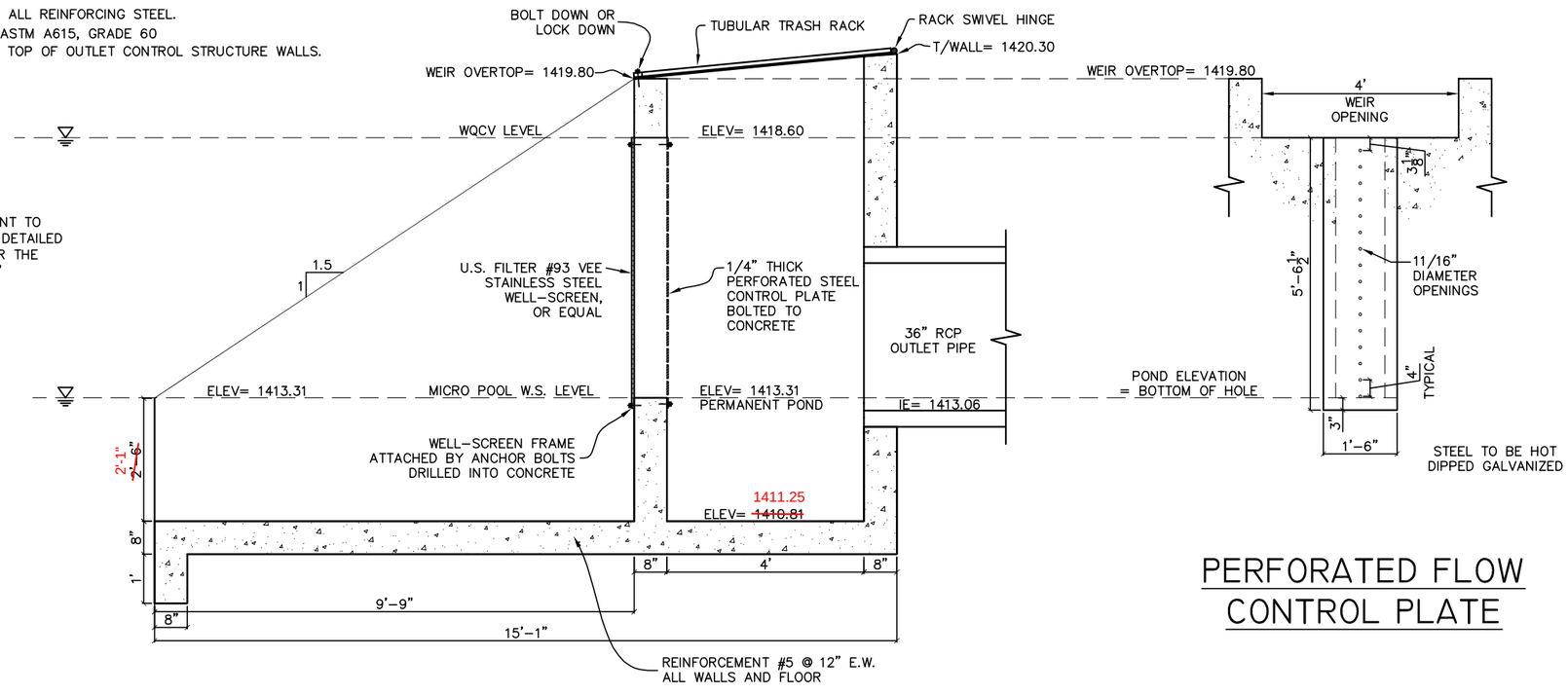
U.S. FILTER #93 VEE STAINLESS STEEL WELL-SCREEN OR EQUAL
WIRE SLOT OPENING = 0.139
SUPPORT ROD = #156 VEE SPACED ¾" ON-CENTER
TOTAL SCREEN THICKNESS = 0.31"
FRAME = ⅜"x1" CARBON STEEL FLAT BAR
FRAME DIMENSION = 5'-6½" x 1'-2"

GENERAL NOTES:

1. ALL CONCRETE SHALL BE SDDOT CLASS M6.
2. MAINTAIN A MINIMUM OF 2" CLEAR COVER ON ALL REINFORCING STEEL.
3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60
4. POND SLOPES SHALL BE GRADED FLUSH WITH TOP OF OUTLET CONTROL STRUCTURE WALLS.

MEASUREMENT AND PAYMENT:

ALL COSTS FOR LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT A COMPLETE OUTLET STRUCTURE AS DETAILED SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR THE ITEMS "BMP OUTLET STRUCTURE – SOUTH POND."



SECTION A-A VIEW

SCALE: 1/3" = 1'

PERFORATED FLOW CONTROL PLATE

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

SOUTH POND - BMP OUTLET CONTROL STRUCTURE

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

SOUTH POND - BMP OUTLET CONTROL STRUCTURE
DESIGNED BY: ARS/MDW
DRAWN BY: OML ACAD FILE: 210710_Outlet Structures.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

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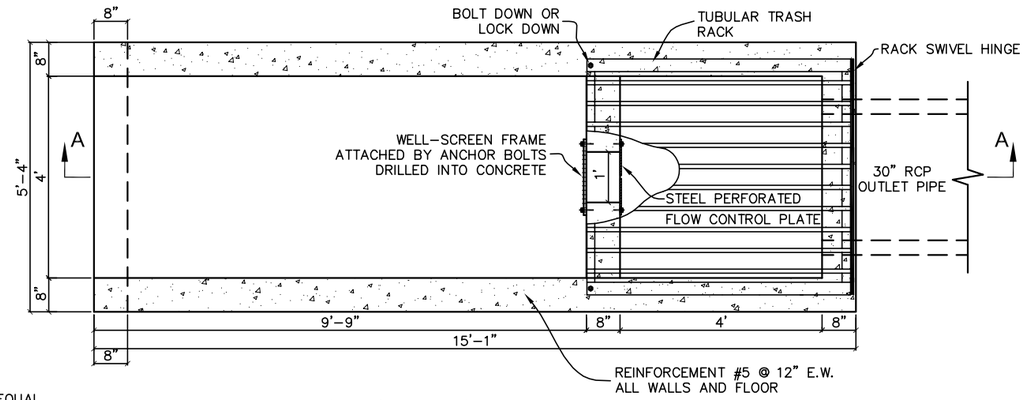
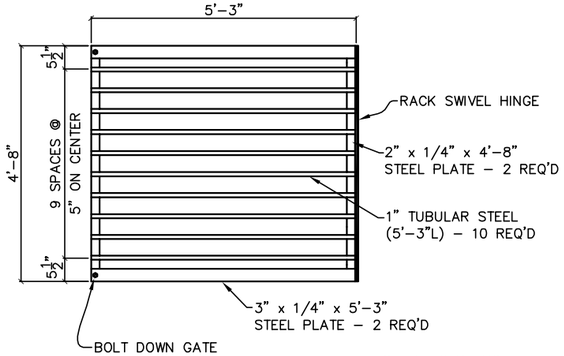


PLAN VIEW

SCALE: 1/3" = 1'



TUBULAR TRASH RACK

WELL-SCREEN SPECIFICATIONS:

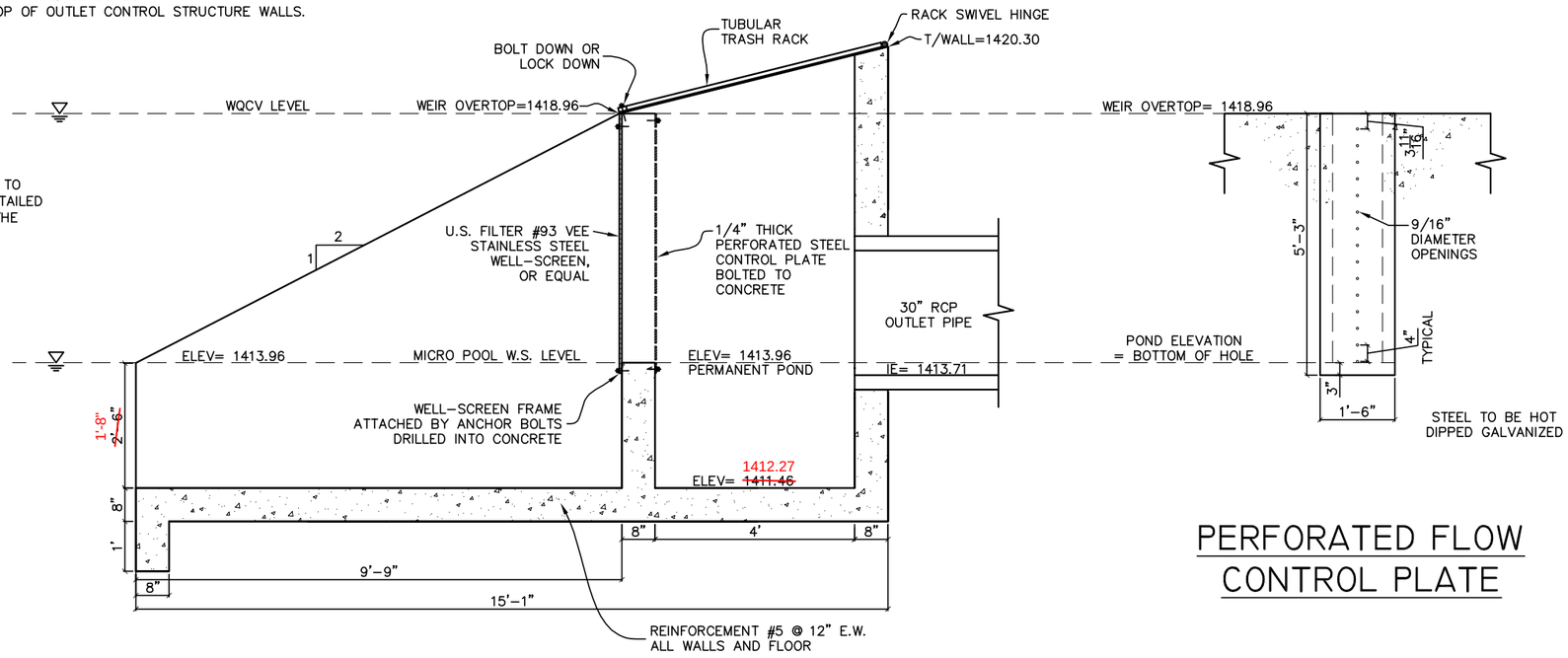
U.S. FILTER #93 VEE STAINLESS STEEL WELL-SCREEN OR EQUAL
WIRE SLOT OPENING = 0.139
SUPPORT ROD = #156 VEE SPACED ¾" ON-CENTER
TOTAL SCREEN THICKNESS = 0.31"
FRAME = ⅜"x1" CARBON STEEL FLAT BAR
FRAME DIMENSION = 5'-3" x 1'-2"

GENERAL NOTES:

1. ALL CONCRETE SHALL BE SDDOT CLASS M6.
2. MAINTAIN A MINIMUM OF 2" CLEAR COVER ON ALL REINFORCING STEEL.
3. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60
4. POND SLOPES SHALL BE GRADED FLUSH WITH TOP OF OUTLET CONTROL STRUCTURE WALLS.

MEASUREMENT AND PAYMENT:

ALL COSTS FOR LABOR, MATERIALS AND EQUIPMENT TO CONSTRUCT A COMPLETE OUTLET STRUCTURE AS DETAILED SHALL BE INCLUDED IN THE LUMP SUM PRICE FOR THE ITEMS "BMP OUTLET STRUCTURE – NORTH POND."



SECTION A-A VIEW

SCALE: 1/3" = 1'

PERFORATED FLOW CONTROL PLATE

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

AS-BUILT DRAWINGS
JANUARY 2013

NORTH POND - BMP OUTLET CONTROL STRUCTURE

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

NORTH POND - BMP OUTLET CONTROL STRUCTURE
DESIGNED BY: ARS/MDW
DRAWN BY: CML ACAD FILE: 210710_Outlet Structures.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE: BY: DATE:

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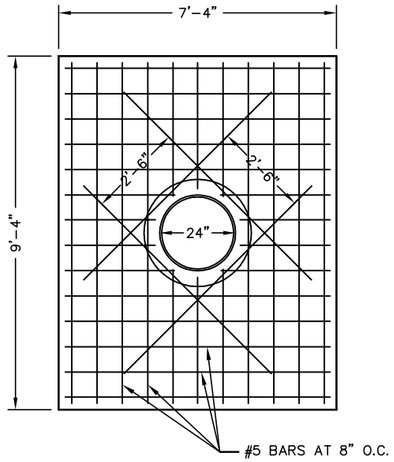
TOP VIEW

SCALE: 1/4" = 1'



SPECIFICATIONS:

USE SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION, AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

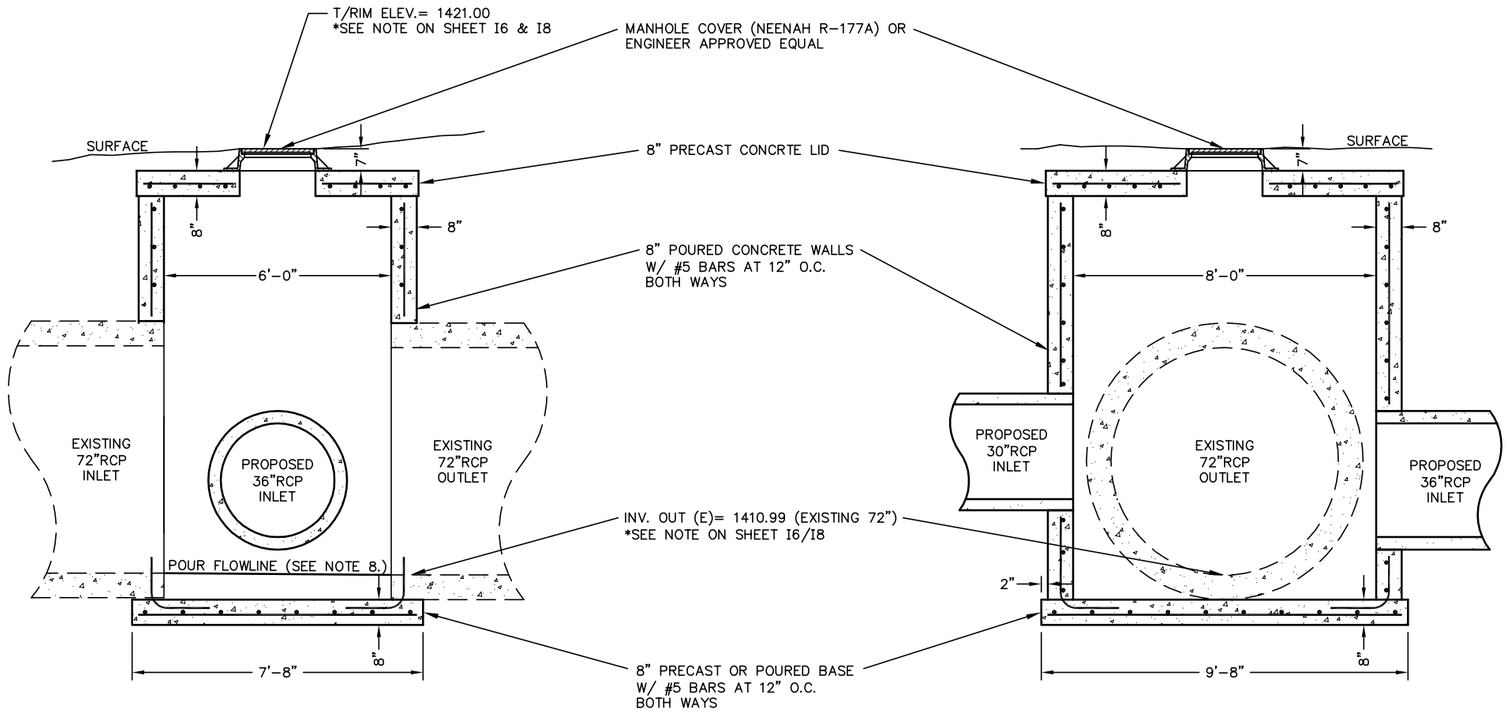
GENERAL NOTES:

1. ALL REINFORCING STEEL SHALL CONFORM TO ASTM A615, GRADE 60.
2. ALL REINFORCING STEEL SHALL BE CUT AND/OR BENT IN THE FIELD TO MAINTAIN A MINIMUM OF 2" COVER ON ALL REINFORCING STEEL.
3. NO VERTICAL CONSTRUCTION JOINTS ARE ALLOWED.
4. ALL CONCRETE SHALL BE CLASSED M-6.
5. UNIT STRESSES: CONCRETE Fc = 1600 P.S.I.
   REINFORCING STEEL Fc = 20,000 P.S.I.
6. TOP OF MANHOLE COVER TO BE SET FLUSH WITH FINISHED SURFACE ELEVATION.
7. J.B. LID REINFORCEMENT REQUIRES 11 – #5 BARS 9'-0" LONG AND 18 – #5 BARS 7'-0" LONG TO BE PLACED AS SHOWN. 2" FROM CIRCULAR OPENING AND 8" CENTER TO CENTER AT A DEPTH OF 6" W/MIN. COVER THICKNESS OF 8".
8. FLOOR OF JUNCTION BOX TO BE FINISHED IN SUCH A MANNER TO INSURE UNINTERRUPTED FLOW THRU THE BOX.

ESTIMATED QUANTITIES		
ITEM	QUANTITY	UNIT
CLASS M-6 CONCRETE	9.1	Cu.Yd.
REINFORCING STEEL	912	Lb.

SIDE VIEWS

SCALE: 1/4" = 1'



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SOUTH DAKOTA

JB#7 DETAIL - SPECIAL 8'X6' JUNCTION BOX

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

JB #7 - SPECIAL 8'X6' JUNCTION BOX
DESIGNED BY: ARS/JDH
DRAWN BY: ARS ACAD FILE: 210710_Special Junction Box.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
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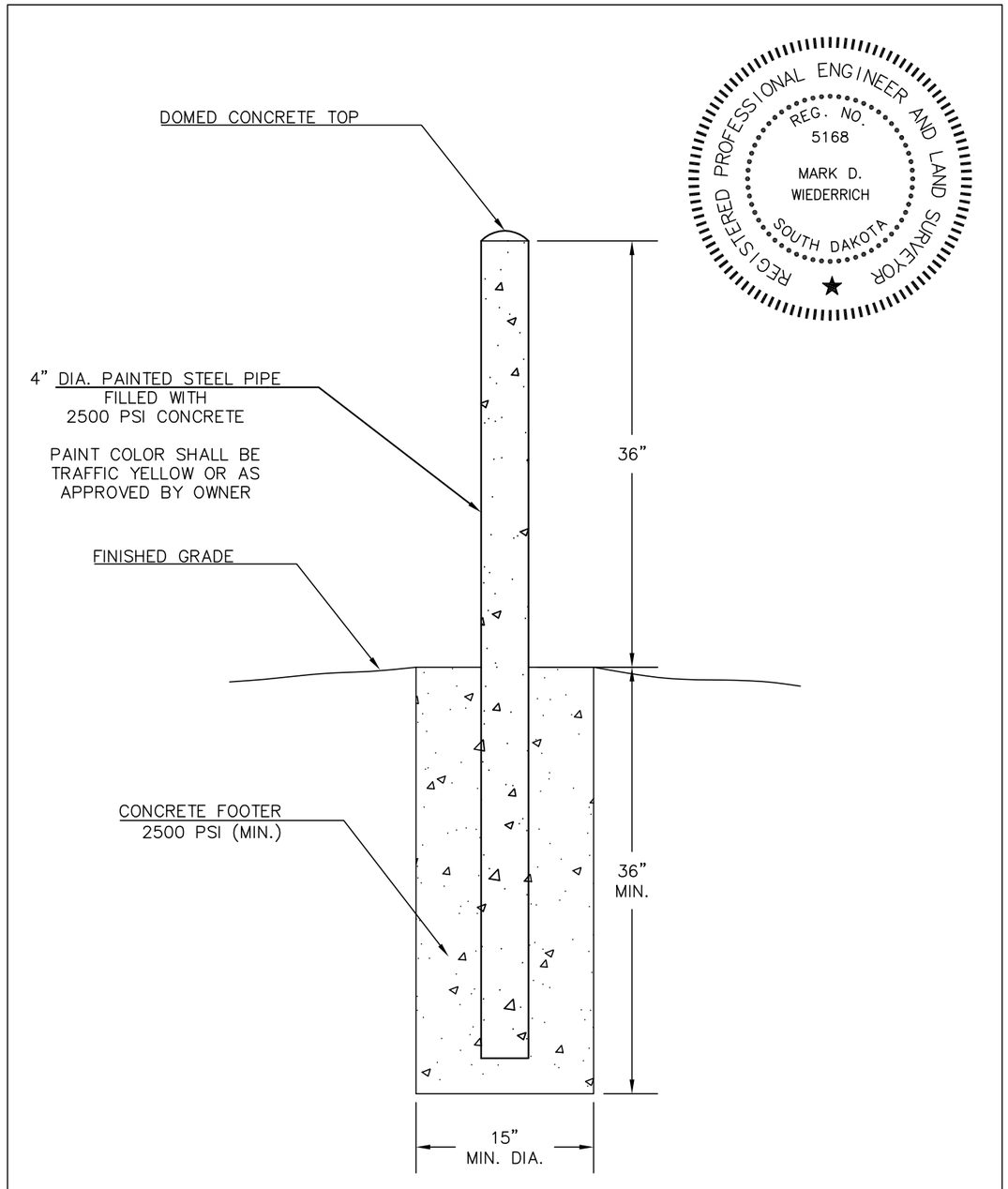

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TYPICAL BOLLARD DETAIL

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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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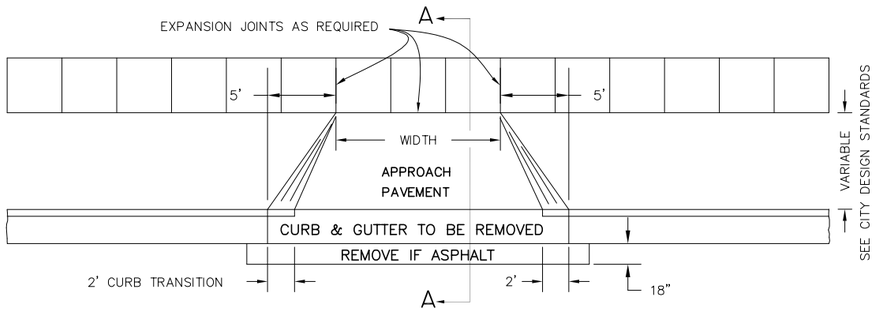
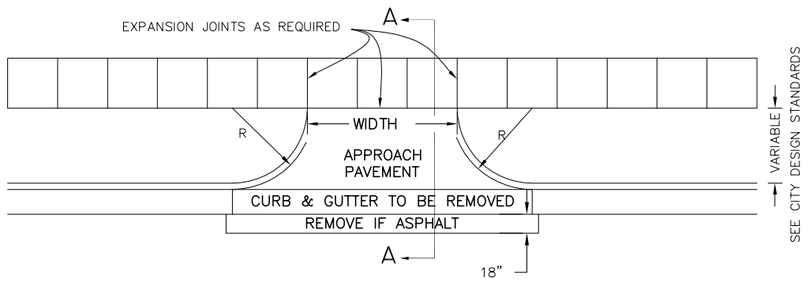
DROP CURB TYPE APPROACH

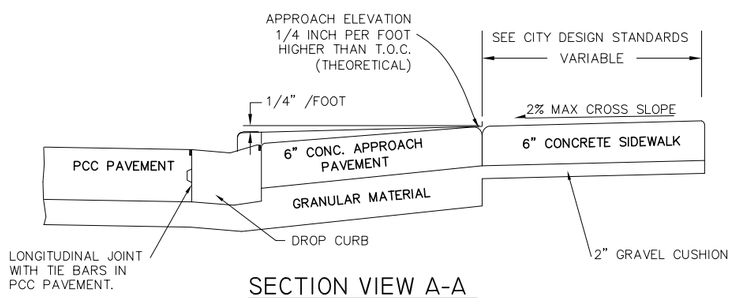


PLAN VIEW

RADIUS TYPE APPROACH



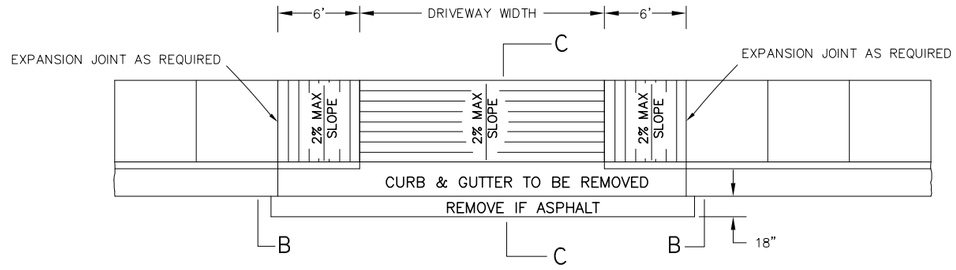
PLAN VIEW



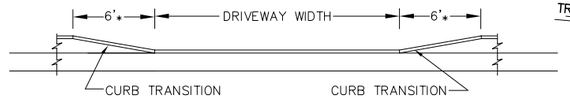
SECTION VIEW A-A

(APPLIES TO BOTH DROP CURB & RADIUS TYPE)

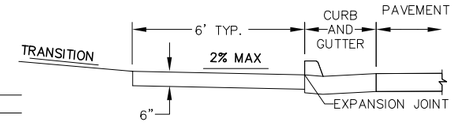
CURBSIDE SIDEWALK TYPE APPROACH



PLAN VIEW



SECTION VIEW B-B



SECTION VIEW C-C

* REQUIREMENT: WHEN BACK OF CURB SIDEWALK IS GOING TO BE INSTALLED IT WILL BE NECCESSARY TO EXTEND THE CURB TRANSITION LENGTH ACCORDING TO THE TABLE TO ACHIEVE THE 8.33% MAXIMUM RUNNING SLOPE ON THE SIDEWALK RAMP ADACENT TO THE CURB. THE TRANSITION LENGTH WILL BE LIMITED TO 15' IN LENGTH.

	TRANSITION LENGTH 8.33% MAX SLOPE	
STREET GRADE	LOW SIDE	HIGH SIDE
1%	6'-0"	7'-2"
2%	6'-0"	8'-4"
3%	6'-0"	10'-0"
4%	6'-0"	12'-6"
5% +	6'-0"	15'-0"

GENERAL NOTES

PERMITS ARE REQUIRED BEFORE BEGINNING CONSTRUCTION OR ALTERATION OF ANY DRIVEWAY.

THE CURB AND GUTTER SHALL BE TAKEN OUT TO THE NEAREST CONSTRUCTION JOINT WHEN THE JOINT IS WITHIN 4' OF THE END OF THAT DRIVEWAY.

FULL DEPTH SAWING IS REQUIRED WHEN THE CURB AND GUTTER IS NOT REMOVED AT A CONSTRUCTION JOINT. A CLEAN, NEAT AND VERTICAL CUT THROUGH THE CURB SECTION IS REQUIRED.

ALL SIDEWALK IN THE LIMITS OF THE WIDTH OF THE DRIVEWAY SHALL HAVE A MINIMUM THICKNESS OF 6".

CONTRACTION JOINTS SHALL BE FORMED IN THE APPROACH PAVEMENT BY MEANS OF A SUITABLE GROOVING TOOL. THESE JOINTS SHALL HAVE A DEPTH OF AT LEAST 1/4 THE THICKNESS OF THE CONCRETE APPROACH PAVEMENT.

A 2" GRAVEL CUSHION IS REQUIRED UNDER THE APPROACH PAVEMENT AND WILL BE PAID FOR PER BID ITEM.

THE "CONCRETE APPROACH PAVEMENT" WILL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD, SUCH PRICE BEING FULL COMPENSATION FOR ALL LABOR, MATERIALS AND INCIDENTALS IN CONNECTION WITH CONSTRUCTING THE SAME.

THE CONCRETE IN "CONCRETE APPROACH PAVEMENT" SHALL COMPLY WITH THE REQUIREMENTS OF THE STANDARD SPECIFICATIONS FOR CLASS M-6 CONCRETE.

REVISED: JANUARY 2005

CITY OF SIOUX FALLS
ENGINEERING DIVISION

CONCRETE APPROACH PAVEMENT

SPECIFICATION REFERENCE NO.	PLATE NUMBER
380	380.01

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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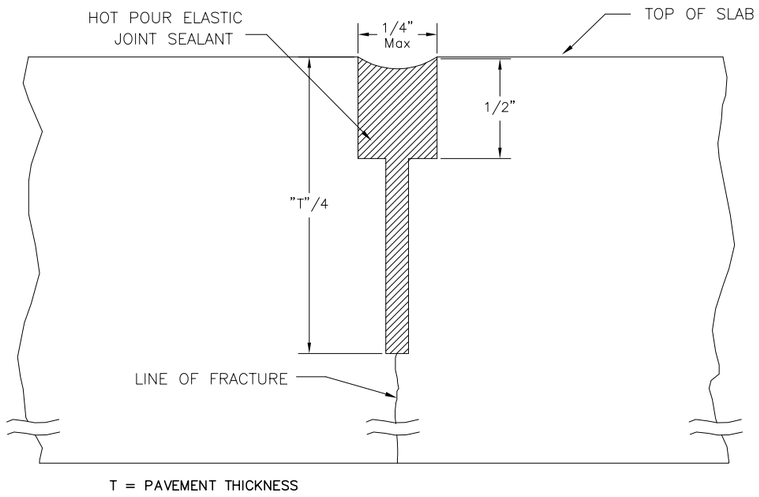
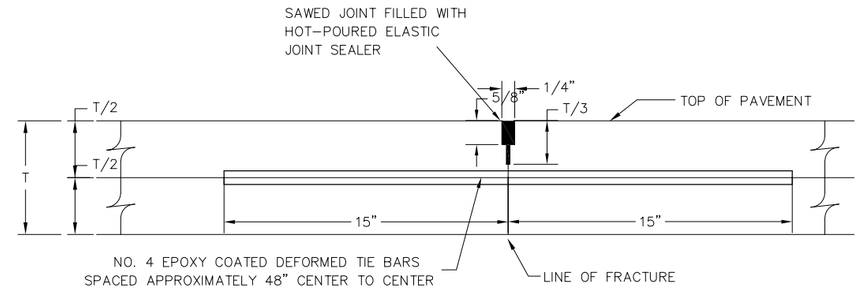


T = PAVEMENT THICKNESS

THE FIRST SAW CUT TO CONTROL CRACKING SHALL BE A MINIMUM OF 1/4 THE DEPTH OF THE PAVEMENT. ADDITIONAL SAWING FOR WIDENING THE SAW CUT TO PROVIDE THE WIDTH FOR THE INSTALLATION OF THE HOT POUR ELASTIC JOINT SEALANT MAY BE NECESSARY.

ISSUED: SEPTEMBER 2005

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION TRANSVERSE CONTRACTION JOINT	PLATE NUMBER 380.04 SP



NOTE:
ALL NO. 4 EPOXY COATED DEFORMED STEEL TIE BARS SHALL BE PLACED PERPENDICULAR TO THE LONGITUDINAL JOINTS AND SUPPORTED ON APPROVED CHAIRS DURING CONCRETE OPERATIONS WITHOUT DISPLACEMENT.

REVISED: NOVEMBER 1995

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION SAWED LONGITUDINAL JOINT	PLATE NUMBER 380.06

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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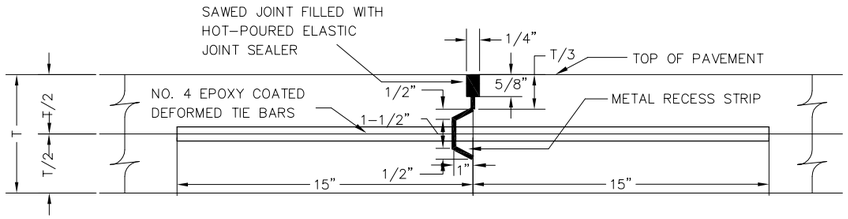
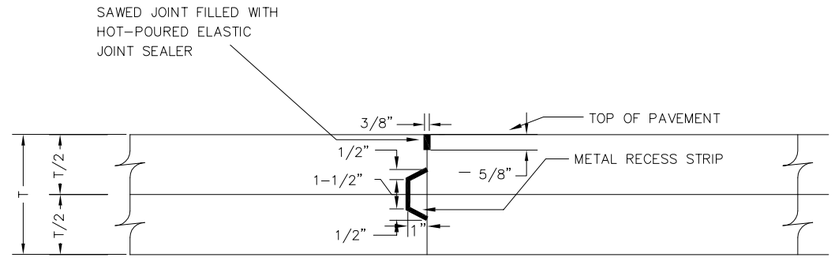


IF PROPOSED, APPROVAL OF ALTERNATE DESIGNS OF THE KEYWAY WILL BE CONSIDERED BY THE ENGINEER FOR LONGITUDINAL CONSTRUCTION JOINTS. THE NO. 4 EPOXY COATED DEFORMED TIE BARS SHALL BE SPACED APPROXIMATELY 48" CENTER TO CENTER.

REVISED: NOVEMBER 1995

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION KEYWAY LONGITUDINAL JOINT WITH TIE BARS	PLATE NUMBER 380.07



IF PROPOSED, APPROVAL OF ALTERNATE DESIGNS OF THE KEYWAY WILL BE CONSIDERED BY THE ENGINEER.

REVISED: FEBRUARY 1993

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION KEYWAY CONSTRUCTION JOINT WITHOUT TIE BARS	PLATE NUMBER 380.08

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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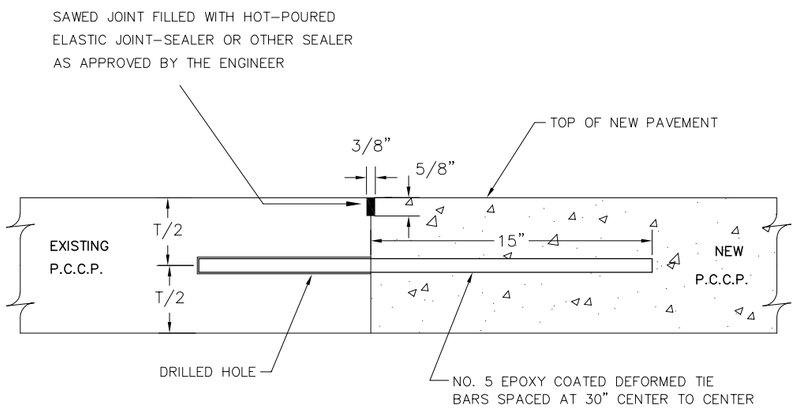


T = PAVEMENT THICKNESS

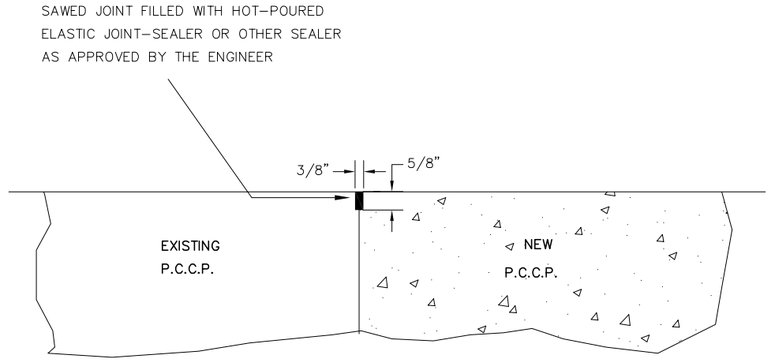
GENERAL NOTES

THE TIE BAR IS TO BE EMBEDDED A MINIMUM DEPTH OF 9 INCHES INTO THE EXISTING PAVEMENT BY UTILIZING AN EPOXY RESIN ADHESIVE.

TIE BARS SHALL BE PLACED A MINIMUM OF 15 INCHES FROM EXISTING TRANSVERSE CONTRACTION JOINTS.

REVISED: FEBRUARY 1993

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS	PLATE NUMBER 380.09



REVISED: FEBRUARY 1993

SPECIFICATION REFERENCE NO. 380	CITY OF SIOUX FALLS ENGINEERING DIVISION CONSTRUCTION JOINT ADJACENT TO EXISTING PAVEMENT	PLATE NUMBER 380.13

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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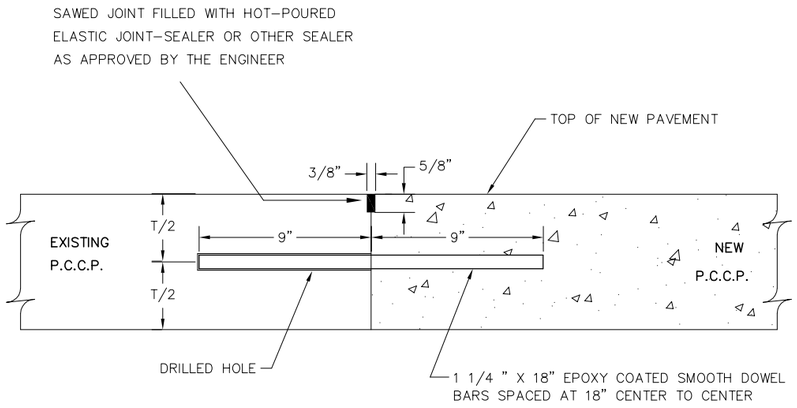


T = PAVEMENT THICKNESS

GENERAL NOTES

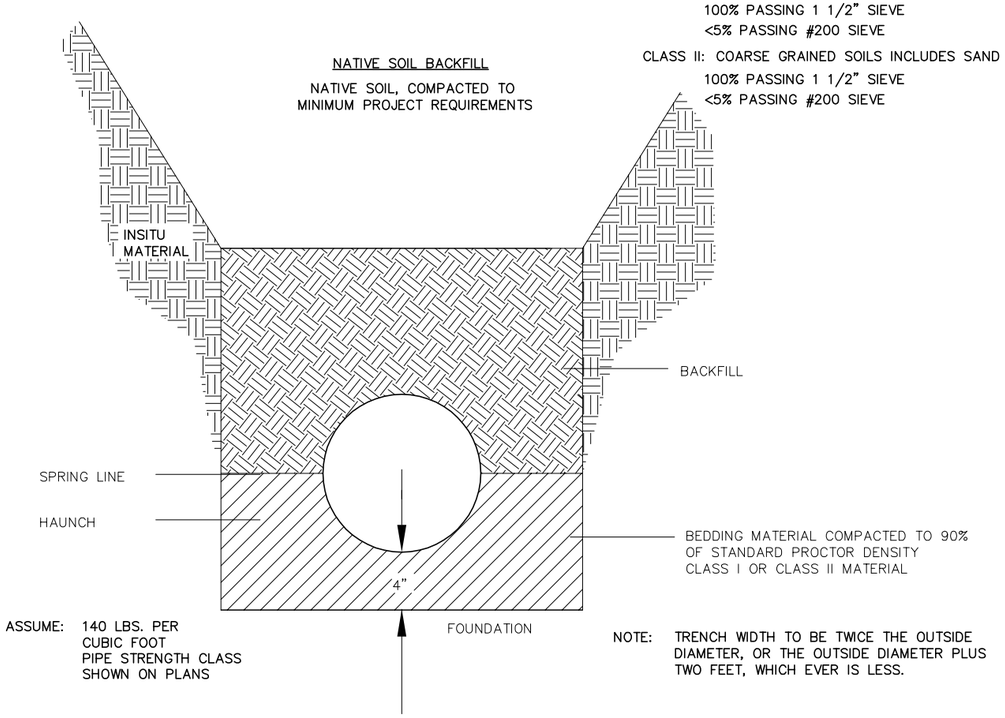
THE DOWEL BAR IS TO BE EMBEDDED A MINIMUM DEPTH OF 9 INCHES INTO THE EXISTING PAVEMENT BY UTILIZING AN EPOXY RESIN ADHESIVE.

THE REMAINING 9" OF DOWEL BAR SHALL BE GREASED.

REVISED: JANUARY 1995

SPECIFICATION REFERENCE NO.		CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
380		TIE BAR INSTALLATION IN TRAVERSE JOINT	380.14

FOR 12" THRU 84" DIAMETER PIPE
TYPE B INSTALLATION



ASSUME: 140 LBS. PER CUBIC FOOT
PIPE STRENGTH CLASS SHOWN ON PLANS

NOTE: TRENCH WIDTH TO BE TWICE THE OUTSIDE DIAMETER, OR THE OUTSIDE DIAMETER PLUS TWO FEET, WHICH EVER IS LESS.

QUANTITY ESTIMATE TABLE

FOR BEDDING MATERIAL

12"	0.14 TON/L.F.
15"	0.19 TON/L.F.
18"	0.25 TON/L.F.
21"	0.29 TON/L.F.
24"	0.33 TON/L.F.
27"	0.36 TON/L.F.
30"	0.40 TON/L.F.
33"	0.44 TON/L.F.
36"	0.48 TON/L.F.
42"	0.57 TON/L.F.
48"	0.67 TON/L.F.
54"	0.77 TON/L.F.
60"	0.88 TON/L.F.
66"	0.98 TON/L.F.
72"	1.10 TON/L.F.
78"	1.24 TON/L.F.
84"	1.35 TON/L.F.

REVISED: JANUARY 2008

SPECIFICATION REFERENCE NO.		CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
SPECIAL		BEDDING AND BACKFILL FOR RCP TYPE B INSTALLATION	450.06

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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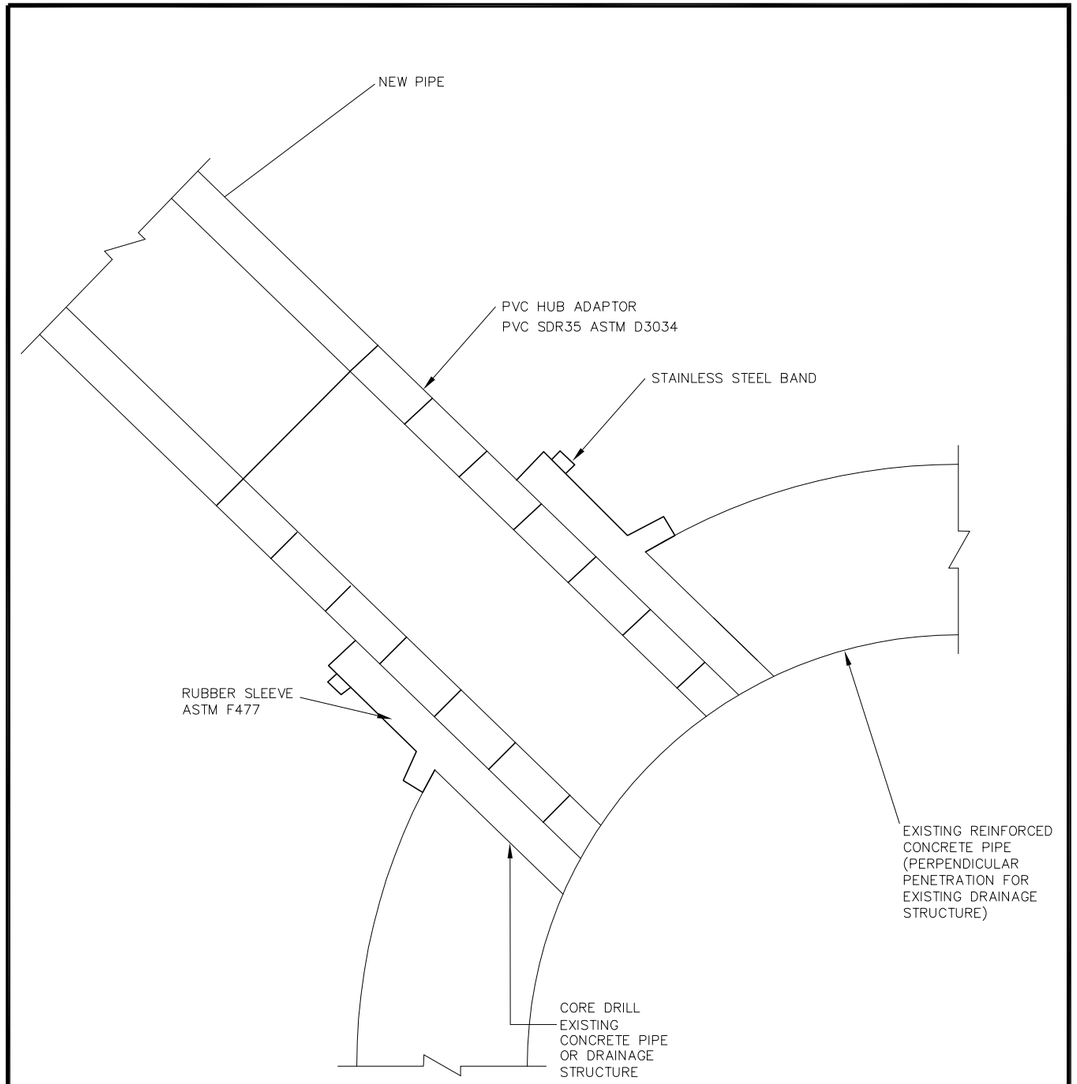

NOTES: BOOT CONNECTION SHALL BE INSERTA TEE OR APPROVED EQUIVALENT
NEW PIPE IS TO BE INSTALLED INTO THE UPPER HALF OF THE
(LARGER) PIPE OR AS PER LATERAL ELEVATIONS INDICATED ON PLANS
AND 18" BELOW THE FLOWLINE OF THE CURB AND GUTTER

REVISED: NOVEMBER 2003

SPECIFICATION REFERENCE NO. 450	CITY OF SIOUX FALLS ENGINEERING DIVISION STORM SEWER BOOT CONNECTION	PLATE NUMBER 450.13 SP

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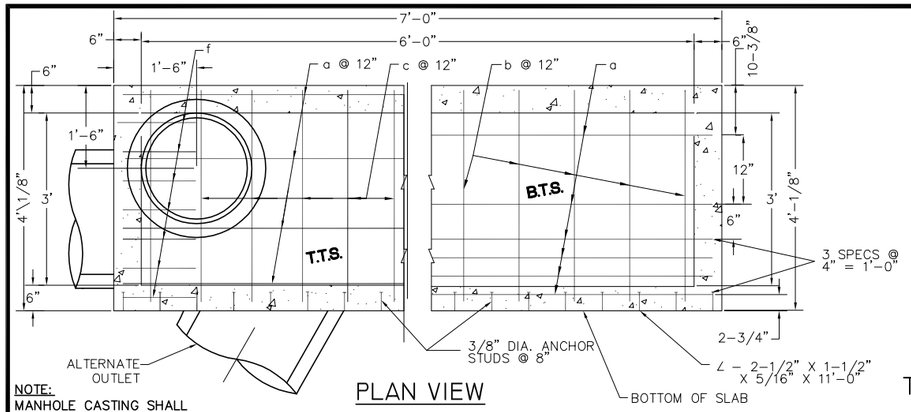
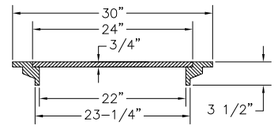
OF
Q31



PLAN VIEW

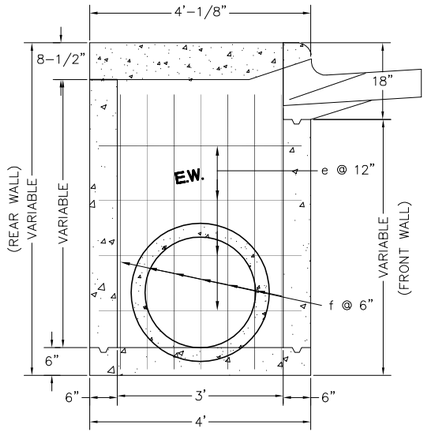
NOTE:
MANHOLE CASTING SHALL BE PLACED OVER OUTLET.

LEGEND FOR PLACING RE-STEEL
T.T.S. ~ TOP OF TOP SLAB
B.T.S. ~ BOTTOM OF TOP SLAB
F.W. ~ FRONT WALL
R.W. ~ REAR WALL
E.W. ~ END WALL
B.S. ~ BOTTOM SLAB

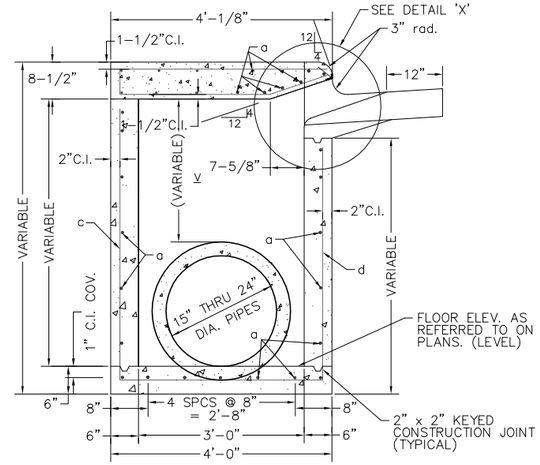


TYPICAL SECTION THRU MANHOLE ASSEMBLY

MANHOLE FRAME AND COVER SHALL BE A NEENAH R-6040, TYPE Y OR ENGINEER APPROVED EQUAL.

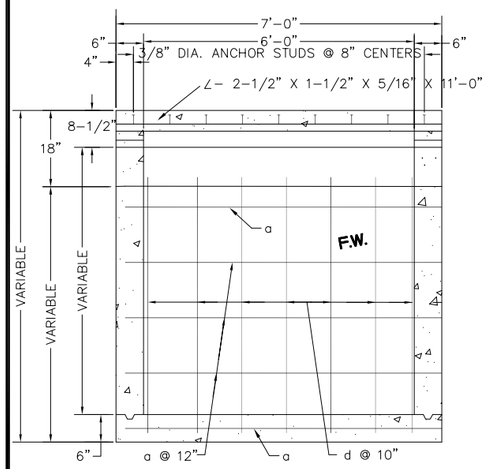


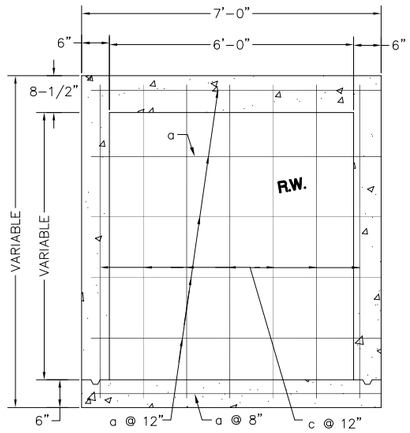
END ELEVATION



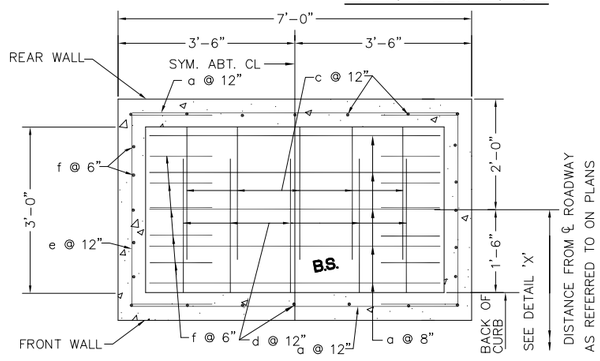
TYPICAL SECTION

NOTE: REBAR FOR THE BACK WALL SHALL BE PLACED SIMILAR TO THE FRONT.

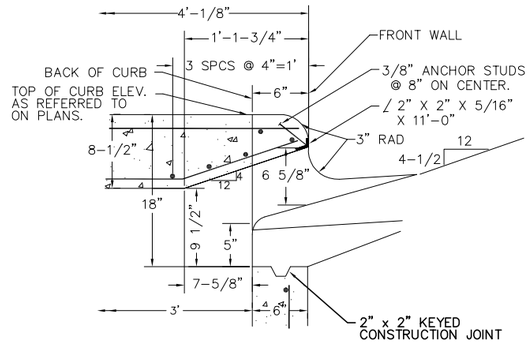




PART ELEVATION



PART PLAN



DETAIL 'X'

GENERAL NOTES

1. ALL EXPOSED EDGES SHALL BE CHAMFERED 1".
2. DESIGN SPECIFICATION: A.A.S.H.T.O. SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION.
3. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A615 GRADE 60.
4. UNIT STRESSES: CONCRETE: fc = 1,600 P.S.I.; fc = 4,000 P.S.I.
   REINFORCING STEEL: fs = 20,000 P.S.I.
5. THE COST OF ANGLE, STUDS AND GALV. SHALL BE ABSORBED IN THE PRICE BID FOR REINFORCING STEEL OR UNIT PRICE FOR EACH INLET.
6. TRANSITION TO FULL INLET OPENING DEPTH SHALL BE 3" EACH SIDE OF OUTSIDE WALLS.
7. MINIMUM ⅜" EXPANSION MATERIAL SHALL BE PLACE BETWEEN THE CURB AND THE INLET LID ON BOTH SIDES OF THE INLET.
8. TOOLED JOINTS SHALL BE PLACED ACROSS THE GUTTER PAN AT THE OUTSIDE WALLS OF THE INLET STRUCTURE.
9. IT IS NOT ACCEPTABLE TO CONSTRUCT THIS STRUCTURE WITH THE PIPE CONNECTION AS A NON-MONOLITHIC INSTALLATION.
10. ALL REINFORCING STEEL IS TO BE TIED IN PLACE PRIOR TO THE START OF CONCRETE PLACEMENT.

SPECIFICATION NOTE

USE SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

ESTIMATED QUANTITIES

ITEM	UNIT	6' LONG INLET					
		15" DIA. OUTLET		18" DIA. OUTLET		24" DIA. OUTLET	
		CONSTANT	VARIABLE	CONSTANT	VARIABLE	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	1.72	0.35V	1.82	0.35V	2.02	0.35V
REINFORCEMENT-CONC. MASONRY	LBS	278	43.9V	290	43.9V	303	43.9V
MANHOLE RIM & COVER-TYPE Y	EACH	1	----	1	----	1	----

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 15" DIA=-0.04 C.Y., 18" DIA. =-0.05 C.Y., 24" DIA. =-0.09 C.Y.

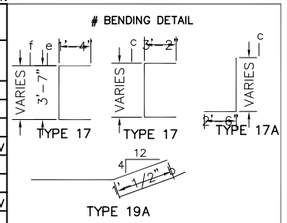
REINFORCING SCHEDULE

			15" DIA. PIPE		30" DIA. PIPE		18" ARCH PIPE	
MK	SZ	TYPE	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
*a	5	STR	21+2V	6'-3"	21+2V	6'-3"	21+2V	6'-3"
*b	4	19A	6	3'-9"	6	3'-3"	6	3'-3"
*c	4	17	7	7'9 3/4"+V	7	9'-1"+V	7	8'7 1/2"+V
d	6	17A	7	3'4 3/4"+V	7	3'-8"+V	7	4'-2"+V
*e	4	17	4+2V	6'-3"	4+2V	6'-3"	4+2V	6'-3"
*f	4	17	14	4'8 3/4"+V	14	5'-0"+V	14	5'6 1/2"+V

* CUT AND BEND IN FIELD AS NECESSARY TO FIT

ALL REINFORCING STEEL DIMENSIONS ARE OUTSIDE TO OUTSIDE.

BENDING DETAIL



NOTE: FOR 15" TO 24" PIPES - MAX. REVISED: DECEMBER 2009

CITY OF SIOUX FALLS
ENGINEERING DIVISION
STANDARD 6'-0" S.F. TYPE STORM SEWER INLET

SPECIFICATION REFERENCE NO.	PLATE NUMBER
460	460.01

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

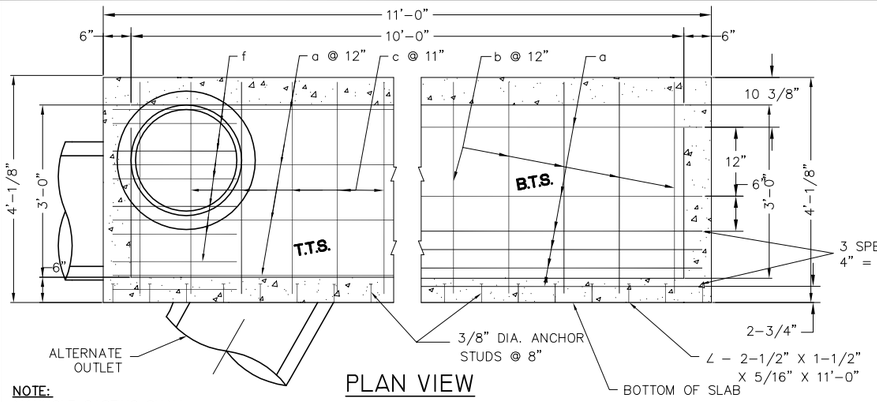
DETAILS / STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011 DATE:
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

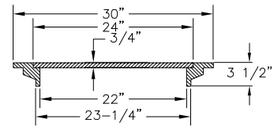
SHEET NO.
Q11
OF
Q31



PLAN VIEW

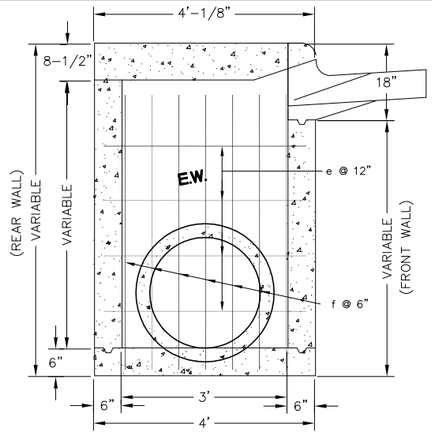
NOTE:
MANHOLE CASTING SHALL BE PLACED OVER OUTLET.

LEGEND FOR PLACING RE-STEEL
T.T.S. ~ TOP OF TOP SLAB
B.T.S. ~ BOTTOM OF TOP SLAB
F.W. ~ FRONT WALL
R.W. ~ REAR WALL
E.W. ~ END WALL
B.S. ~ BOTTOM SLAB

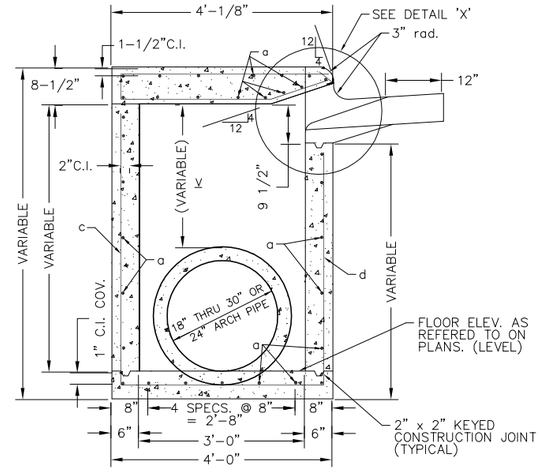


TYPICAL SECTION THRU MANHOLE ASSEMBLY

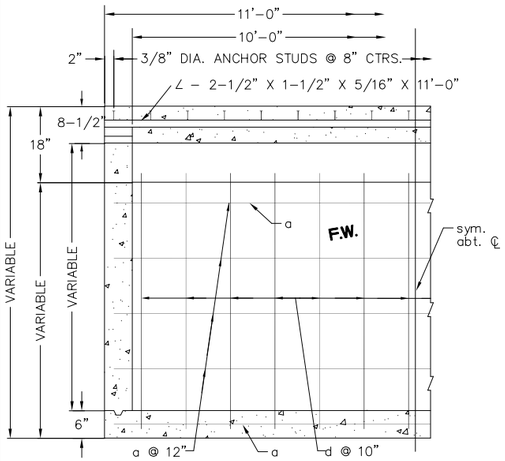
MANHOLE FRAME AND COVER SHALL BE A NEENAH R-6040, TYPE Y OR ENGINEER APPROVED EQUAL.

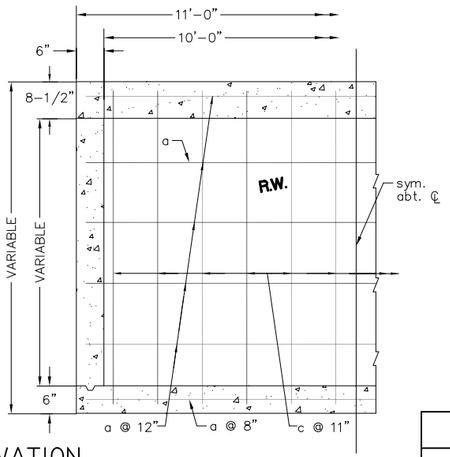


END ELEVATION

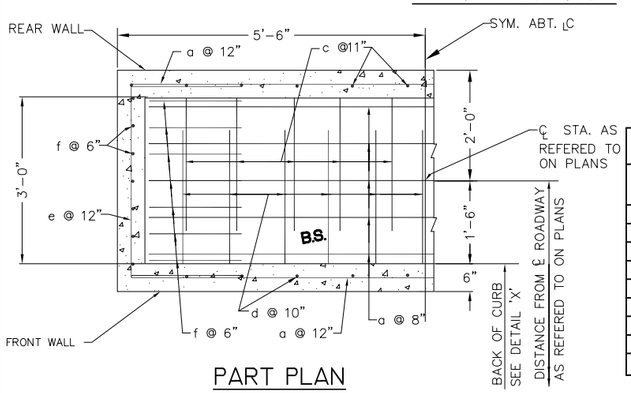


TYPICAL SECTION

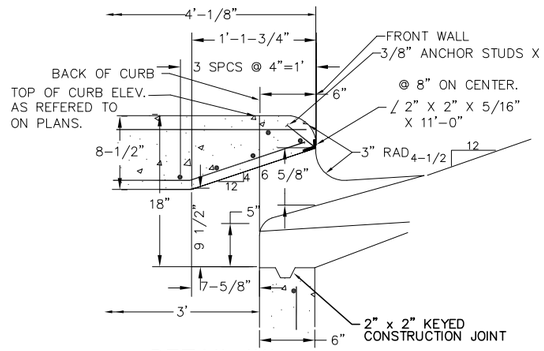




PART ELEVATION



PART PLAN



DETAIL 'X'

GENERAL NOTES

1. ALL EXPOSED EDGES SHALL BE CHAMFERED 1".
2. DESIGN SPECIFICATION: A.A.S.H.T.O. SPECIFICATIONS FOR HIGHWAY BRIDGES, LATEST EDITION.
3. ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A615 GRADE 60.
4. UNIT STRESSES: CONCRETE: fc = 1,600 P.S.I.; fc = 4,000 P.S.I.
   REINFORCING STEEL: fs = 20,000 P.S.I.
5. THE COST OF ANGLE, STUDS AND GALV. SHALL BE ABSORBED IN THE PRICE BID FOR REINFORCING STEEL OR UNIT PRICE FOR EACH INLET.
6. TRANSITION TO FULL INLET OPENING DEPTH SHALL BE 3" EACH SIDE OF OUTSIDE WALLS.
7. MINIMUM ⅜" EXPANSION MATERIAL SHALL BE PLACE BETWEEN THE CURB AND THE INLET LID ON BOTH SIDES OF THE INLET.
8. TOOLED JOINTS SHALL BE PLACED ACROSS THE GUTTER PAN AT THE OUTSIDE WALLS OF THE INLET STRUCTURE.
9. IT IS NOT ACCEPTABLE TO CONSTRUCT THIS STRUCTURE WITH THE PIPE CONNECTION AS A NON-MONOLITHIC INSTALLATION.
10. ALL REINFORCING STEEL IS TO BE TIED IN PLACE PRIOR TO THE START OF CONCRETE PLACEMENT.

SPECIFICATION NOTE

USE SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

ESTIMATED QUANTITIES

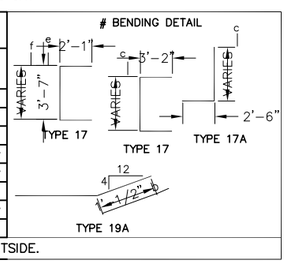
ITEM	UNIT	10' LONG INLET											
		18" DIA. OUTLET		21" DIA. OUTLET		24" DIA. OUTLET		27" DIA. OUTLET		30" DIA. OUTLET		24" ARCH OUTLET	
		CONSTANT	VARIABLE	CONSTANT	VARIABLE	CONSTANT	VARIABLE	CONSTANT	VARIABLE	CONSTANT	VARIABLE	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	2.75	0.49V	2.89	0.49V	3.03	0.49V	3.17	0.49V	3.31	0.49V	2.79	0.49V
REINFORCEMENT-CONC. MASONRY	LBS	466	68.6V	476	68.6V	485	68.6V	528	68.6V	538	68.6V	469	68.6V
MANHOLE RIM & COVER-TYPE Y	EACH	1	----	1	----	1	----	1	----	1	----	1	----

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 18" DIA.=-0.05 C.Y., 21" DIA. =-0.07C.Y., 24" DIA. =-0.09 C.Y., 27" DIA. =-0.11 C.Y., 30" DIA. =-0.14 C.Y. AND ARCH =-0.09 C.Y.

REINFORCING SCHEDULE

MK	SZ	TYPE	18" DIA. PIPE		21" DIA. PIPE		24" DIA. PIPE		27" DIA. PIPE		30" DIA. PIPE		24" ARCH PIPE	
			NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH	NO.	LENGTH
*a	5	STR	21+2V	10'-3"	21+2V	10'-3"	21+2V	10'-3"	23+2V	10'-3"	23+2V	10'-3"	21+2V	10'-3"
*b	4	19A	11	3'-9"	11	3'-3"	11	3'-3"	11	3'-3"	11	3'-3"	11	3'-3"
*c	4	17	12	8'-1"+V	12	8'-41/4"+V	12	8'-71/2"+V	12	8'103/4"+V	12	9'-2"+V	12	8'-2"+V
d	5	17A	13	3'-8"+V	13	3'-11"+V	13	4'-2"+V	13	4'-6"+V	13	4'-9"+V	13	3'-9"+V
*e	4	17	4+2V	7'-9"	4+2V	7'-9"	4+2V	7'-9"	6+2V	7'-9"	6+2V	7'-9"	4+2V	7'-9"
*f	4	17	14	6'-6"+V	14	6'-91/4"+V	14	7'-1/2"+V	14	7'-33/4"+V	14	7'-7"+V	14	6'-7"+V

* CUT AND BEND IN FIELD AS NECESSARY TO FIT # ALL REINFORCING STEEL DIMENSIONS ARE OUTSIDE TO OUTSIDE.



NOTE: FOR 18" TO 30" PIPES - MAX. REVISED: DECEMBER 2009

CITY OF SIOUX FALLS
ENGINEERING DIVISION
STANDARD 10'-0" S.F. TYPE STORM SEWER INLET

SPECIFICATION REFERENCE NO.	PLATE NUMBER
460	460.02

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

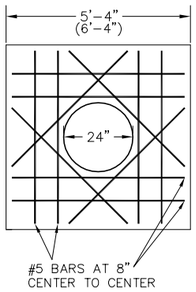
DESIGNED BY:
DRAWN BY: DMS
CHECKED BY: MDW
REVISIONS:
DMS ACAD FILE: 210710_Standard Plates.dwg
MDW DATE: 3/11/2011
BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
Q12
OF
Q31

TOP VIEW



GENERAL NOTES

USE SOUTH DAKOTA STANDARD SPECIFICATIONS FOR ROADS AND BRIDGES, LATEST EDITION ,AND REQUIRED PROVISIONS, SUPPLEMENTAL SPECIFICATIONS AND/OR SPECIAL PROVISIONS AS INCLUDED IN THE PROPOSAL.

ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A615, GRADE 60.

ALL REINFORCING STEEL SHALL BE CUT AND/OR BENT IN THE FIELD TO

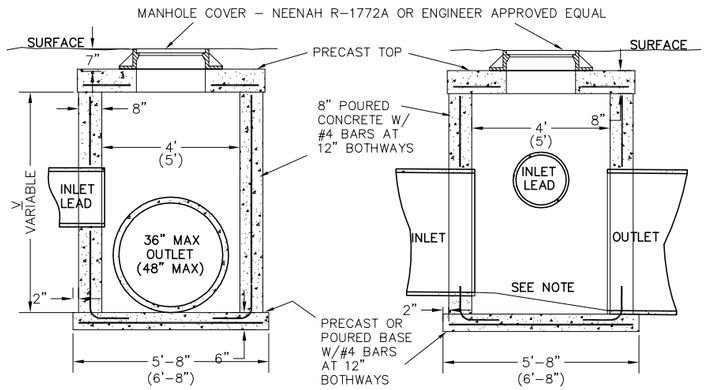
MAINTAIN A MINIMUM OF 2" COVER ON ALL REINFORCING STEEL.

NO VERTICAL CONSTRUCTION JOINTS ARE ALLOWED.

ALL CONC. SHALL BE CLASSED M-6.

UNIT STRESSES: CONCRETE Fc = 1600 P.S.I.
REINFORCING STEEL Fc = 20,000 P.S.I.

TOP OF MANHOLE COVER TO BE SET FLUSH WITH FINISHED SURFACE ELEVATION.



SIDE VIEWS

ESTIMATED QUANTITIES					
ITEM	UNIT	4' X 4' JCT. BOX		5' X 5' JCT. BOX	
		CONSTANT	VARIABLE	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	1.29	0.46V	1.93	0.56V
REINFORCEMENT-CONC. MASONRY	LBS	103	23V	131	35V
MANHOLE RIM & COVER-AS SPECIFIED	EACH	1	----	1	----

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 12" DIA.=-0.03 C.Y., 15" DIA=-0.04 C.Y., 18" DIA.=-0.05 C.Y., 21" DIA.=-0.07 C.Y., 24" DIA.=-0.09 C.Y., 27" DIA.=-0.11 C.Y., 30" DIA=-0.14 C.Y., 33" DIA.=-0.17 C.Y., 36" DIA.=-0.20 C.Y., 42" DIA.=-0.26 C.Y., 48" DIA.=-0.34 C.Y.

NOTES:

COVER REINFORCEMENT REQUIRES 12-#5 BARS 5'(6') LONG TO BE PLACED AS SHOWN.
2" FROM CIRCULAR OPENING AND 8" CENTER TO CENTER AT A DEPTH OF 6" W/MIN. COVER THICKNESS OF 8".

FLOOR OF JCT. BOX TO BE FINISHED IN SUCH A MANNER TO INSURE UNINTERRUPTED FLOW THRU THE BOX.

WHEN PIPE SIZES DIFFER THRU JCT. BOX, TOP OF PIPE TO MATCH WHEN POSSIBLE.

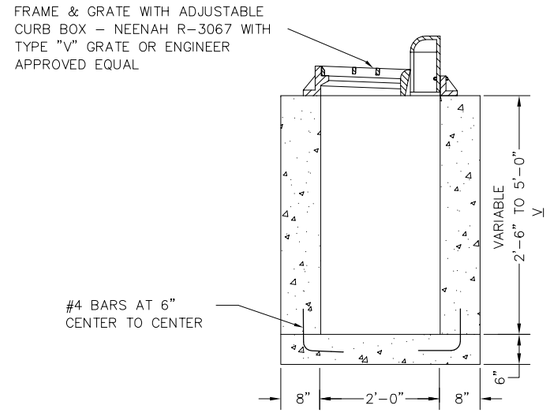
( ) INDICATES SPECIFICATIONS FOR A 5' X 5' JCT. BOX. MAXIMUM PIPE SIZE ALLOWED FOR 4' X 4' JCT. BOX IS 36" R.C.P. A 5' X 5' JCT. IS 48" R.C.P.
VARIABLE DEPTH UP TO 8'

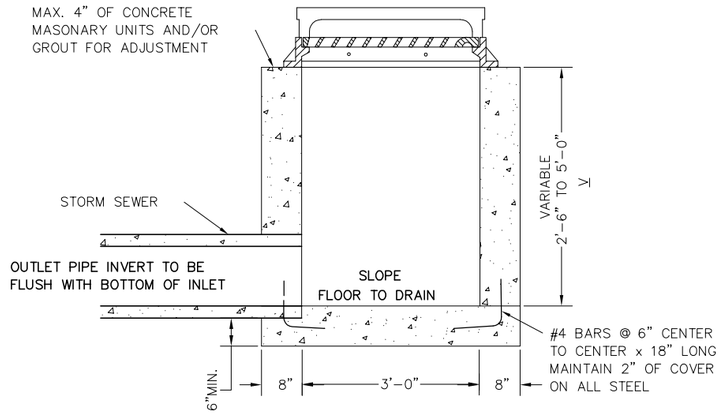
REVISED: DECEMBER 1995

SPECIFICATION REFERENCE NO. 460	CITY OF SIOUX FALLS ENGINEERING DIVISION STANDARD STORM SEWER JUNCTION BOX TYPE I	PLATE NUMBER 460.05

ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	0.27	0.32V
REINFORCEMENT-CONC. MASONRY	LBS	28	---

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 12" DIA.=-0.03 C.Y., 15" DIA=-0.04 C.Y., 18" DIA.=-0.05 C.Y., 24" DIA.=-0.09 C.Y.





REVISED: DECEMBER 1995

SPECIFICATION REFERENCE NO. 460	CITY OF SIOUX FALLS ENGINEERING DIVISION STANDARD STORM SEWER INLET TYPE BI	PLATE NUMBER 460.07

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

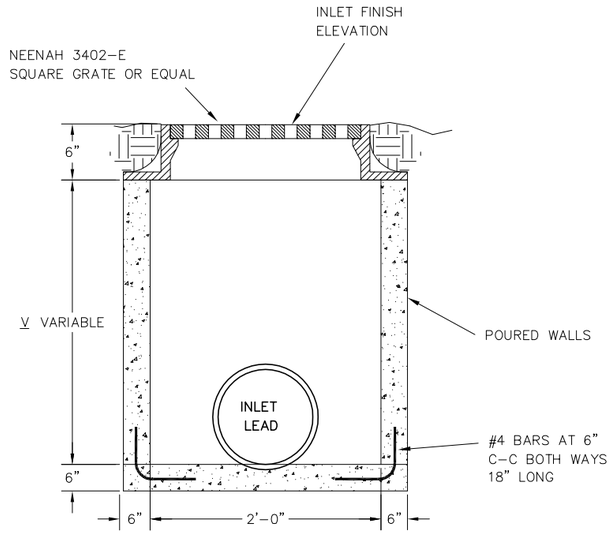
DETAILS / STANDARD PLATES

DESIGNED BY:
DRAWN BY: DMS ACAD FILE: 210710_Standard Plates.dwg
CHECKED BY: MDW DATE: 3/11/2011
REVISIONS: BY: DATE:
BY: DATE:

FSD SIOUX FALLS REGIONAL AIRPORT

GOLDSMITH HECK ENGINEERS, INC.
524 N. Sycamore Ave., Suite 1 • Sioux Falls, SD 57110 • Ph: 605.332.9685

SHEET NO.
Q13
OF
Q31



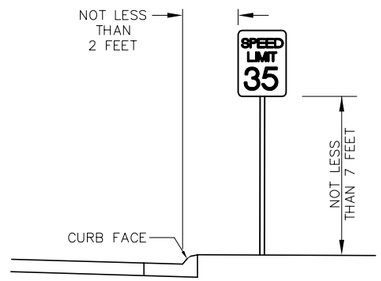
ESTIMATED QUANTITIES			
ITEM	UNIT	CONSTANT	VARIABLE
* CLASS M6 CONCRETE	CUYDS	0.17	0.19V
REINFORCEMENT-CONC. MASONRY	LBS	16	---

* CONSTANT SHALL BE REDUCED FOR THE APPROPRIATE PIPE OR COMBINATION OF PIPES, THUS; 12" DIA.=-0.03 C.Y., 15" DIA=-0.04 C.Y., 18" DIA.=-0.05 C.Y.

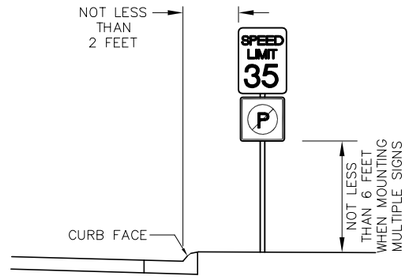
REVISED: DECEMBER 1995

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
460	2' X 2' CATCH BASIN WITH SURFACE DRAIN	460.08

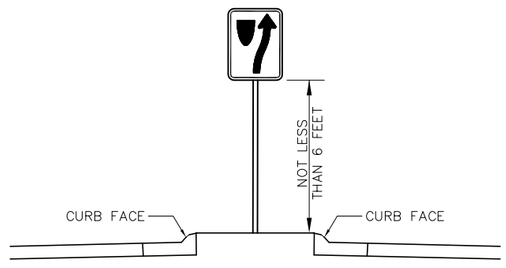
ROADSIDE SINGLE SIGN



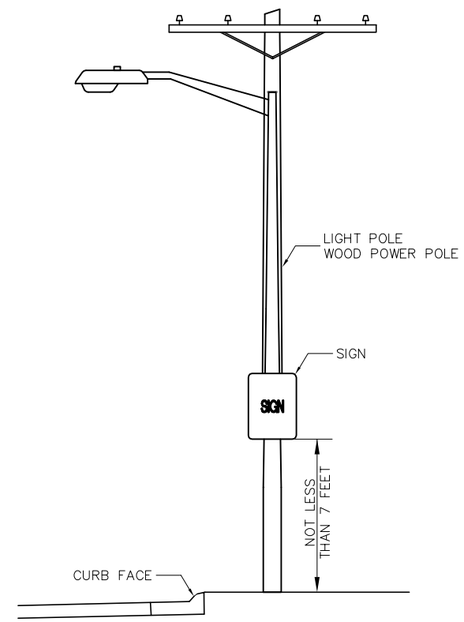
ROADSIDE MULTIPLE SIGN



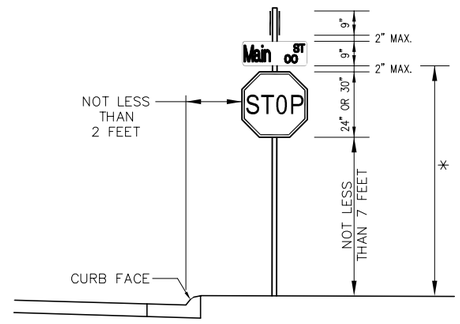
SIGN ON NOSE OF MEDIAN



STREET LIGHT/WOODEN POWER POLE MOUNT



STOP/STREET NAME SIGNS



* 10' WHEN STREET NAME SIGNS ARE MOUNTED ALONE ON POST.

NOTE: ALL R7 & R8 SERIES SIGNS WITH ARROWS SHALL BE INSTALLED AT A 45 DEGREE ANGLE TO THE STREET.

REVISED: SEPTEMBER 2010

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
632	HEIGHTS AND LATERAL LOCATIONS OF SIGNS FOR TYPICAL URBAN INSTALLATION	632.10

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
Q14
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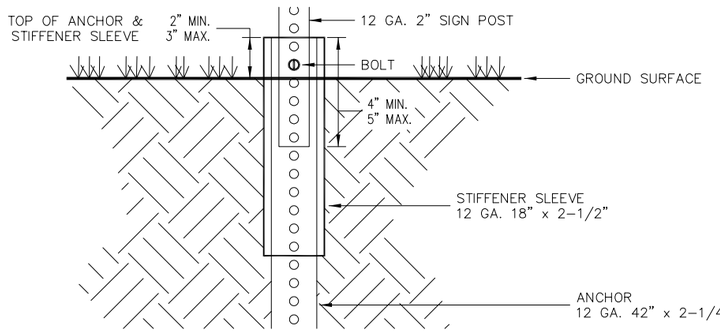
Q31

PERFORATED TUBE POST
(TELESPAR POST)



NOTES

BOLTS AND WASHERS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE STAINLESS STEEL. FLAT WASHERS SHALL BE MIL. SPEC. MS813.

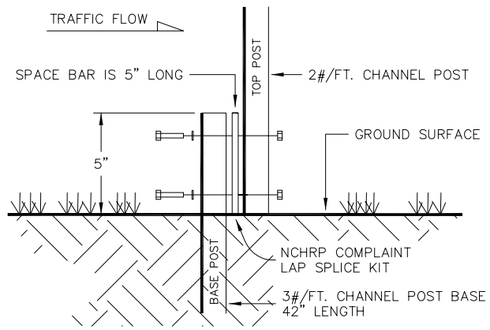
NUTS USED FOR MOUNTING TRAFFIC SIGNS SHALL BE A NYLOC (SELF-LOCKING) TYPE.

SIGNS SHALL BE MOUNTED USING A PLASTIC / NYLON WASHER PLACED BETWEEN THE SIGN FACE AND THE METALLIC FLAT WASHER.

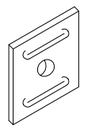
LAG SCREWS USED TO MOUNT TRAFFIC SIGNS TO WOODEN POWER POLES SHALL BE ZINC COATED.

ALL HARDWARE REQUIRED FOR MOUNTING THE SIGNS SHALL BE INCIDENTAL TO THE COST OF INSTALLING THE SIGNS.

FLANGED CHANNEL POST
(U-POST)

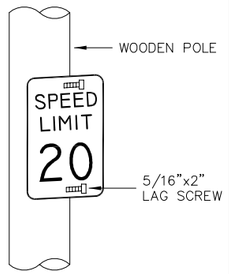


SIGN SAVER PLATE
3"x3" PUNCHED RIBBED ALUMINUM

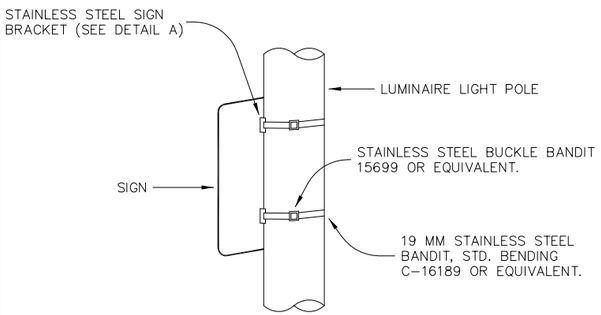


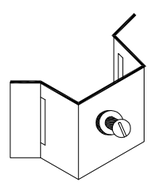
TO BE USED WHEN MOUNTING SIGNS ON CHANNEL POST.

SIGN MOUNTING ON WOODEN POWER POLE



STAINLESS STEEL BAND MOUNTING SYSTEM
TO BE USED WHEN MOUNTING SIGNS ON METALLIC AND FIBERGLASS POLES.





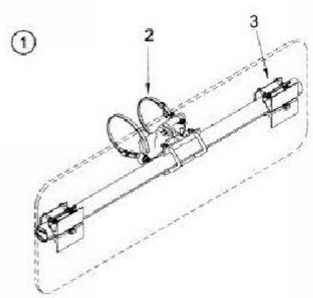
BANDIT DO-21 OR EQUIVALENT.

DETAIL A

REVISED: JULY 2008

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
632	SIGN MOUNT SPECIFICATIONS	632.20

MAST ARM SIGN MOUNTINGS
ASTRO SIGN-BRAC BAND MOUNT



ITEM	DESCRIPTION	PART NO.
1	ASTRO SIGN-BRAC, Stellar Series Band Mount for Overhead Street Name Signs	AS-0128
2	CLAMP KIT, Stellar Series Band Mount	AS-3004
3	SIGN CLAMP, 4" w/ AB-5010 Hardware Kit	AB-0502

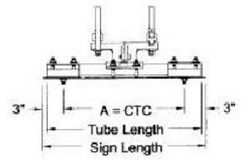
Notes:
1. All assemblies are supplied standard with stainless fasteners and natural aluminum alodine coating. Stainless upgrade to include stainless steel clamp screws.
2. Suggested maximum sign face of 16 sq. ft. per bracket.
3. Please specify options when ordering.

OPTIONS
CTC DIMENSIONS (see charts)
BAND LENGTH: 29", 36", 42", 48", or 56"
STAINLESS UPGRADE
PAINT

SIGNS 1'-6" to 3'-0" LONG

SIGN LENGTH	TUBE LENGTH	CTC A
1'-6"	16"	12"
2'-0"	22"	18"
2'-6"	28"	24"
3'-0"	34"	30"

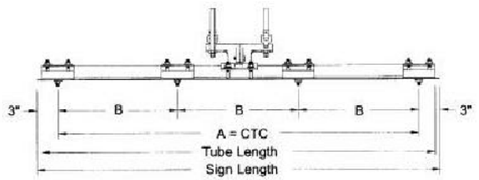
Maximum sign height: 48"



SIGNS 3'-6" to 8'-0" LONG

SIGN LENGTH	TUBE LENGTH	CTC A	B
3'-6"	40"	36"	12"
4'-0"	46"	42"	14"
4'-6"	52"	48"	16"
5'-0"	58"	54"	18"
5'6"	64"	60"	20"
6'-0"	70"	66"	22"
6'-6"	76"	72"	24"
7'-0"	82"	78"	26"
7'6"	88"	84"	28"
8'-0"	94"	90"	30"

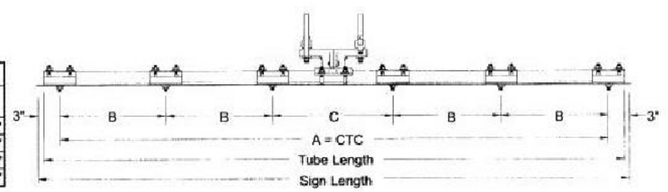
Maximum sign height: 24"



SIGNS 8' to 10' LONG

SIGN LENGTH	TUBE LENGTH	CTC A	B	C
8'-6"	100"	96"	19"	20"
9'-0"	106"	102"	20"	22"
9'-6"	112"	108"	21"	24"
10'-0"	118"	114"	22"	26"

Maximum sign height: 16"



REVISED: JULY 2008

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
632	SIGN MOUNT SPECIFICATIONS	632.20

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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BY: DATE:
BY: DATE:

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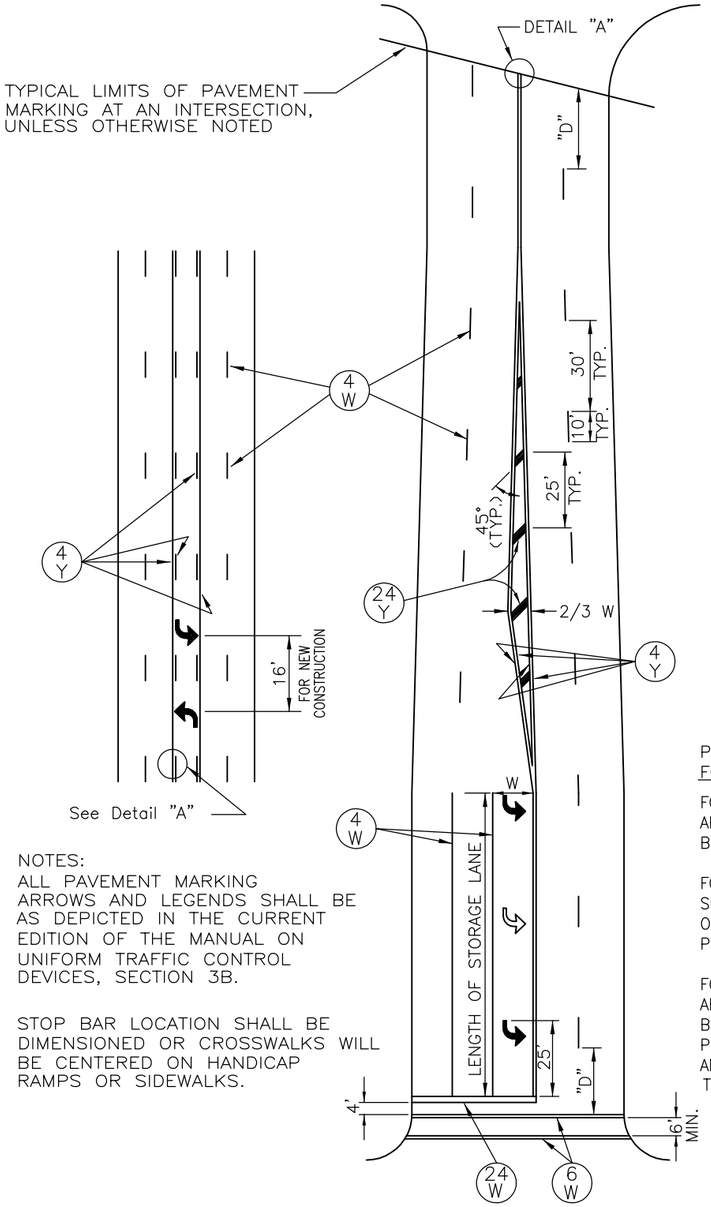
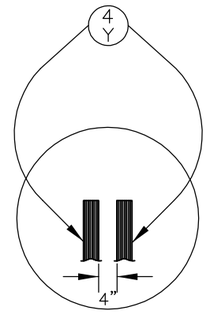


KEY	ITEM
4 W	4" WHITE
4 Y	4" YELLOW
6 W	6" WHITE
24 W	24" WHITE
24 Y	24" YELLOW
	ARROW (10 SQ.FT.) (URBAN CONDITIONS)



DETAIL "A"

PAVEMENT MARKING ARROW SPACING FOR LEFT AND RIGHT TURN LANES:

FOR LANES 75 FEET OR LESS, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE.

FOR LANES 80–150 FEET, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE AND A SECOND ARROW PLACED 25 FEET FROM THE STOP BAR.

FOR LANES 155 FEET OR GREATER, ONE ARROW SHALL BE PLACED AT THE BEGINNING OF THE LANE, ONE ARROW PLACED 25 FEET FROM THE STOP BAR, AND A THIRD ARROW CENTERED BETWEEN THE OTHER TWO ARROWS.

NOTES:
ALL PAVEMENT MARKING ARROWS AND LEGENDS SHALL BE AS DEPICTED IN THE CURRENT EDITION OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, SECTION 3B.

STOP BAR LOCATION SHALL BE DIMENSIONED OR CROSSWALKS WILL BE CENTERED ON HANDICAP RAMPS OR SIDEWALKS.

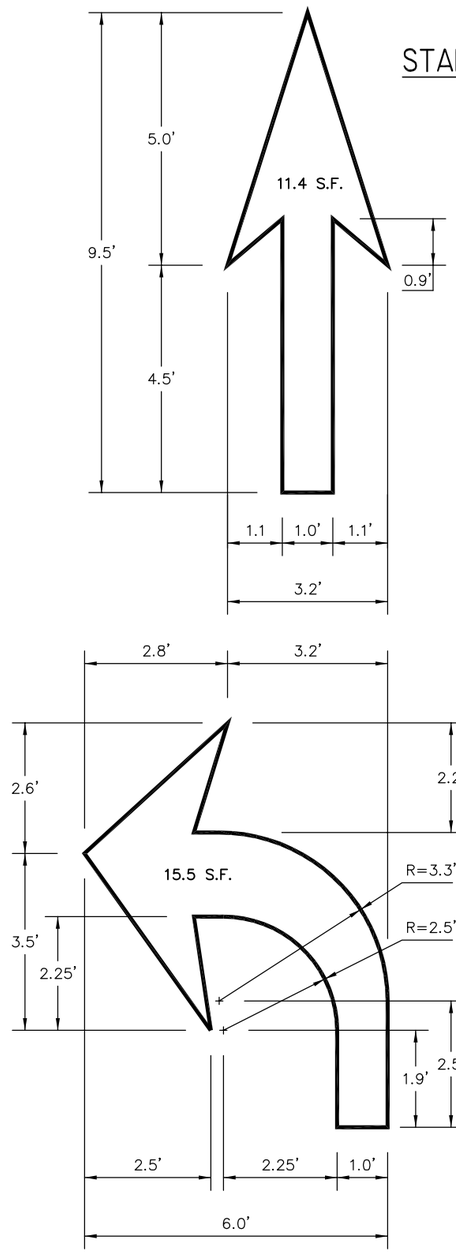
DIMENSION "D" IS VARIABLE BUT SHALL NOT EXCEED 29'.

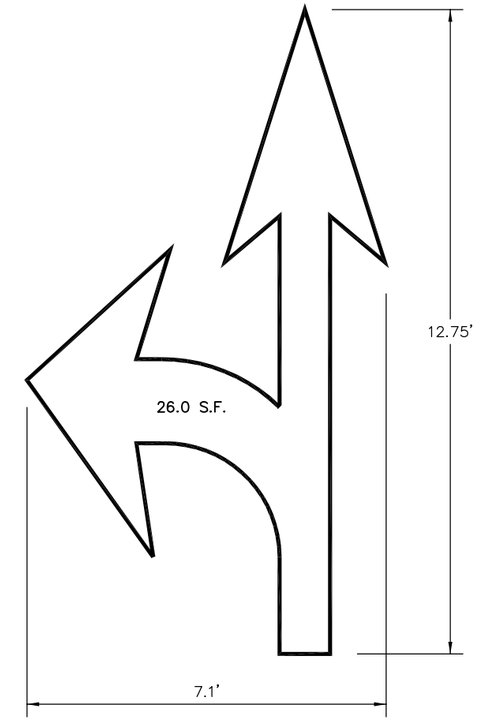
REVISED: JANUARY 2008

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
633	PAVEMENT MARKINGS	633.10

STANDARD SIZE PAVEMENT MARKING ARROWS

GENERAL NOTE: UNLESS OTHERWISED SPECIFIED, STANDARD SIZE PAVEMENT MARKING ARROWS SHALL BE USED ON ALL STREETS WITH POSTED SPEED LIMIT OF 45 MPH OR GREATER AND AT ALL INTERSTATE INTERCHANGES.





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REVISED: MAY 2008

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
633	PAVEMENT MARKING ARROWS	633.20

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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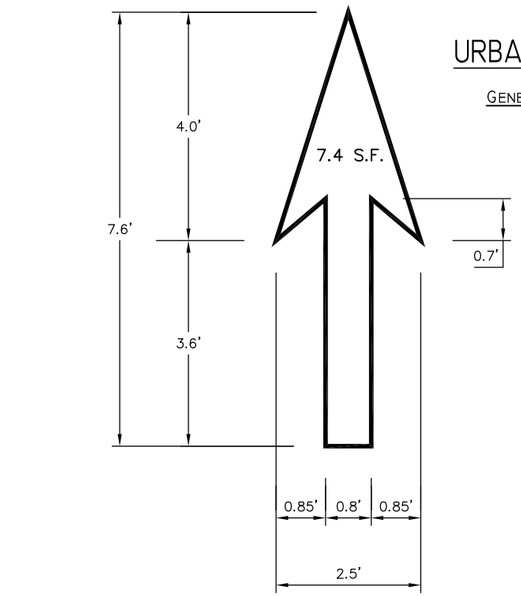
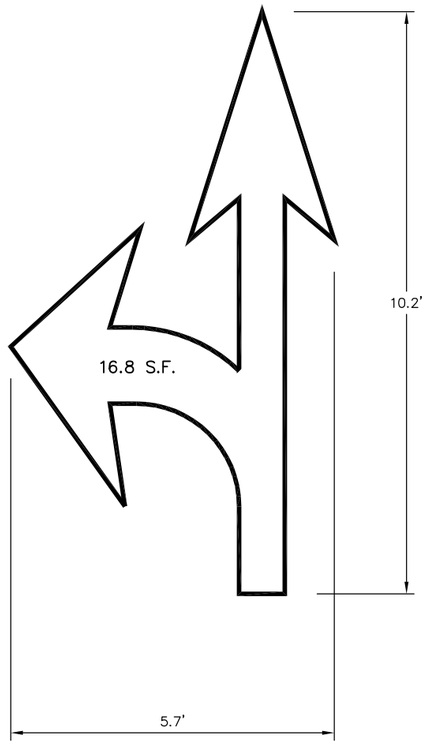
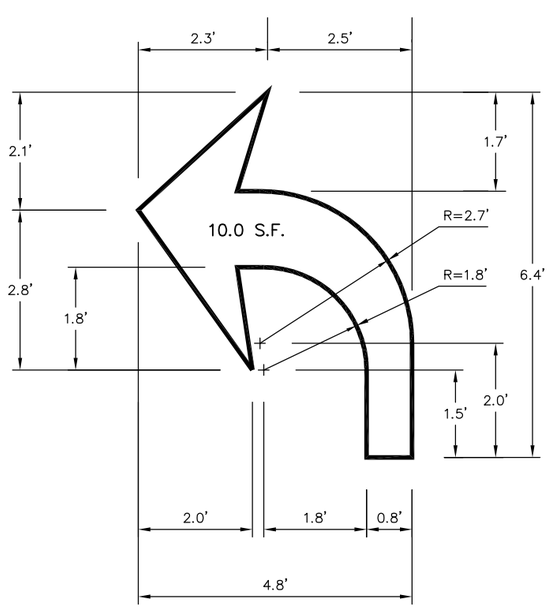
URBAN SIZE PAVEMENT MARKING ARROWS

GENERAL NOTE: UNLESS OTHERWISED SPECIFIED, URBAN SIZE PAVEMENT MARKING ARROWS SHALL BE USED ON ALL STREETS WITH POSTED SPEED LIMIT OF 40 MPH OR LESS.







PAGE: 2 OF 2

REVISED: MAY 2008

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
633	PAVEMENT MARKING ARROWS	633.20

TRAFFIC CONTROL
(Typical Lane Closure)

TAPER FORMULA:
L = S x W FOR SPEEDS OF 45 OR MORE.

$L = WS^2/60$ FOR SPEEDS OF 40 OR LESS.

WHERE:
L = MINIMUM LENGTH OF TAPER
S = NUMERICAL VALUE OF POSTED SPEED LIMIT PRIOR TO WORK OR 85TH PERCENTILE SPEED.
W = WIDTH OF OFFSET.

□ CHANNELIZING DEVICES

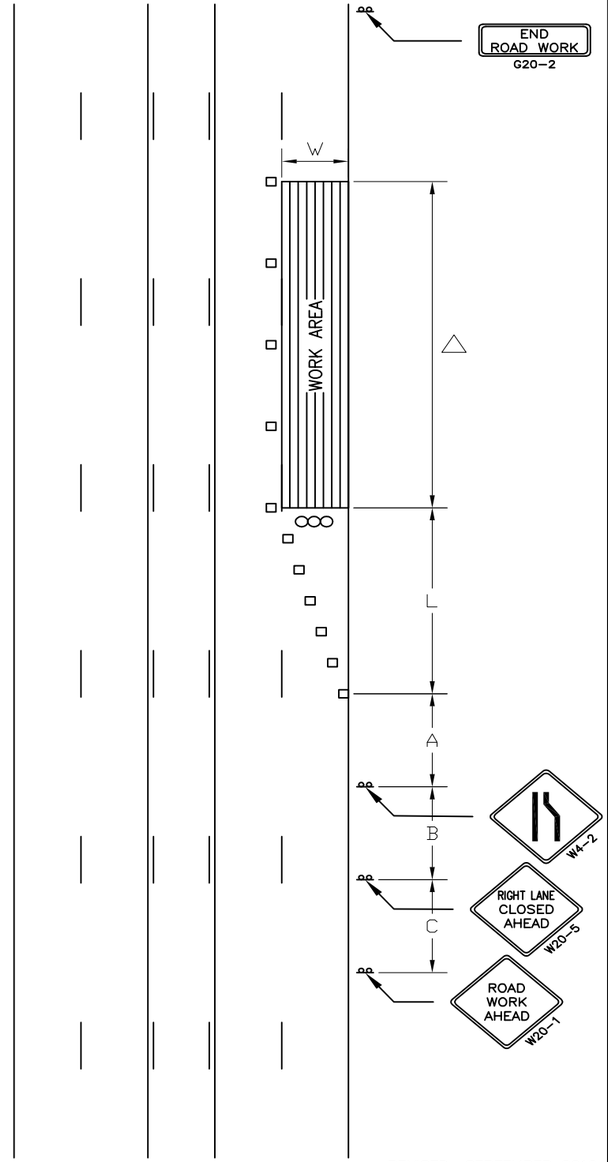
ARROW PANEL

△ SPACING BETWEEN DEVICES SHALL BE UP TO 2 TIMES THE NUMERICAL VALUE OF THE POSTED SPEED LIMIT PRIOR TO WORK.

NOTE:
THE MAXIMUM SPACING BETWEEN CHANNELIZING DEVICES IN A TAPER SHALL BE APPROXIMATELY EQUAL IN FEET TO THE SPEED LIMIT.

IF THE ROAD HAS AN AADT OF LESS THAN 20,000, THE CLOSURE IS NOT IN PLACE OVERNIGHT, AND THE SPEED IS LESS THAN 40 MPH, THE W20-5 SIGN IS OPTIONAL.

POSTED SPEED PRIOR TO WORK (M.P.H.)	SPACING OF ADVANCE WARNING SIGNS (FEET) (A) (B) (C)	TAPER LENGTH (FEET) (L)
0 – 25	100 – 200	$\frac{W \cdot S^2}{60}$
30	120 – 240	$\frac{W \cdot S^2}{60}$
35	140 – 280	$\frac{W \cdot S^2}{60}$
40	160 – 320	$\frac{W \cdot S^2}{60}$
45	180 – 360	W • S
50	200 – 400	W • S
55	220 – 440	W • S



REVISED: SEPTEMBER 2010

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION TYPICAL APPLICATION – CONSTRUCTION OPERATIONS TYPICAL LANE CLOSURE	PLATE NUMBER
634		634.01

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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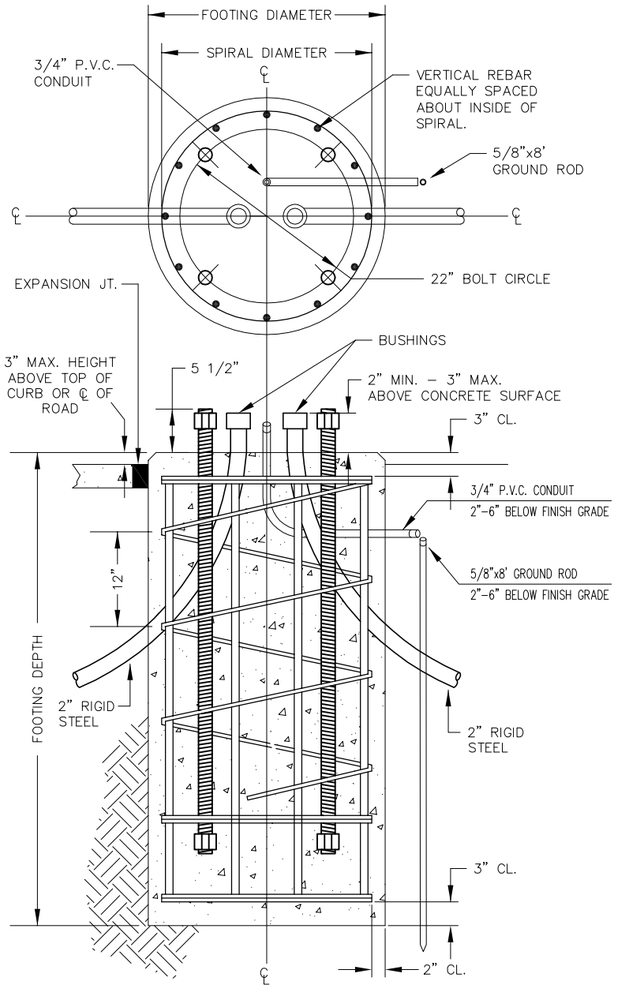


GENERAL NOTES:

IF BASE OF POLE IS LARGER THEN THAT OF THE TOP OF FOOTING, THEN THE TOP ONE FOOT OF THE FOOTING SHALL BE FORMED MONO-LITHICALLY TO MATCH THE POLE BASE.

EXPANSION JOINT MATERIAL – A TWO-INCH (2") EXPANSION STRIP, ASPHALT CONCRETE TYPE "E", COMPACTED AS DIRECTED BY THE ENGINEER, SHALL ISOLATE FOOTING FROM OTHER CONC-RETE. COST OF EXPANSION STRIP TO BE INCLUDED IN THE BID PRICE FOR FOOTINGS.

CONDUITS SHALL BE SEALED, WATER-TIGHT DURING ALL PHASES OF CONSTRUCTION UNTIL POLES ARE IN PLACE.

COST OF THE RGSC AND CONDUIT BUSHING SHOWN IN FOOTINGS DETAIL TO BE INCLUDED IN THE BID PRICE FOR FOOTINGS.

ALL CONCRETE SHALL BE CLASS M-6

USE CURRENT SOUTH DAKOTA STANDARD SPEC-IFICATIONS FOR ROADS AND BRIDGES.

ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 40.

CAP ALL UNUSED CONDUIT.

FINISHED BASE WILL BE LEVEL AND HAVE STEEL TROWEL FINISH.

ANCHOR BOLTS SHALL BE THREADED AT BOTH ENDS WITH NUTS PLACED AT THE BOTTOM.

ANCHOR BOLTS SHALL BE EQUAL DISTANCE FROM THE CENTER OF THE FOOTING.

CONDUITS SHALL BE CENTERED IN THE FOOTING LEAVING ADEQUATE ROOM FOR THE BUSHINGS.

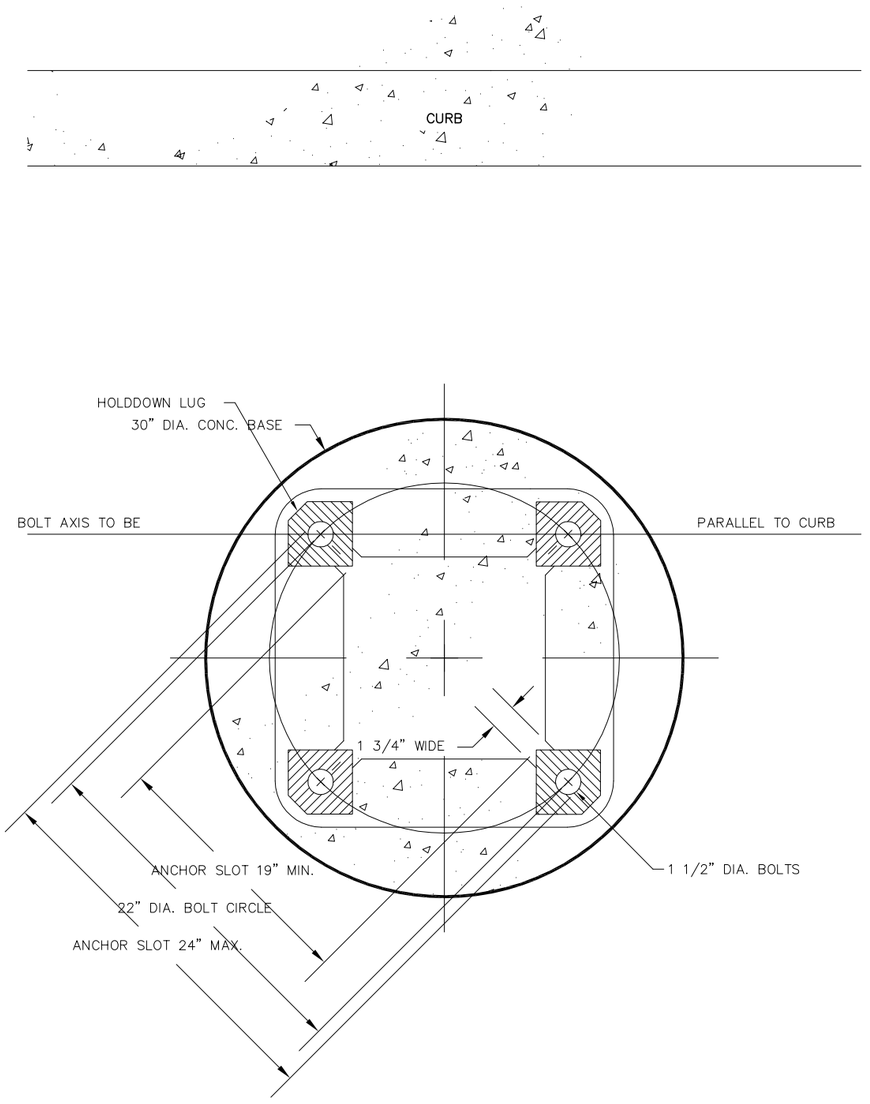
FOOTING DATA

ALL FOOTINGS SHALL BE CLASS M6 CONCRETE, TYPE II CEMENT

FOOTING DIAMETER	FOOTING DEPTH	SPIRAL DIAMETER	SPIRAL SIZE	APPROX. SPIRAL LENGTH	VERTICAL REBAR
2'-6"	9'	2'-2"	#3	79'±	12 – #7x8'-6"
2'-6"	10'	2'-2"	#3	86'±	12 – #7x9'-6"
2'-6"	11'	2'-2"	#3	92'±	12 – #7x10'-6"
2'-6"	12'	2'-2"	#3	99'±	12 – #7x11'-6"
2'-6"	13'	2'-2"	#3	106'±	12 – #7x12'-6"
2'-6"	14'	2'-2"	#3	113'±	12 – #7x13'-6"

REVISED: FEBRUARY 2008

SPECIFICATION REFERENCE NO.		PLATE NUMBER
635A	CITY OF SIOUX FALLS ENGINEERING DIVISION SIGNAL FOOTING FOR MAST ARM SIGNAL	635.12



REVISED: DECEMBER 2007

SPECIFICATION REFERENCE NO.		PLATE NUMBER
635A	CITY OF SIOUX FALLS ENGINEERING DIVISION TRAFFIC SIGNAL TRANSFORMER BASE SIZE AND BOLT CIRCLE REQUIREMENTS	635.14

TERMINAL PARKING & ACCESS IMPROVEMENTS
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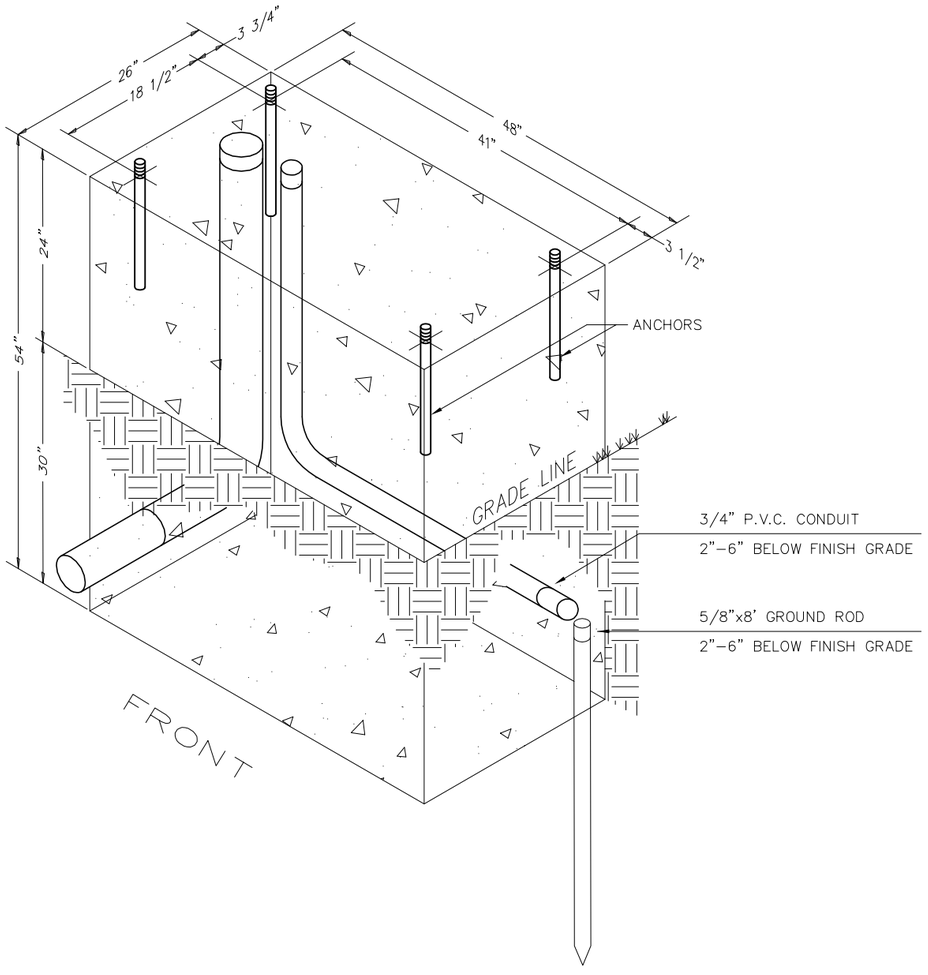


GENERAL NOTES:

1. 5/8" DIA. x 18" GALVANIZED ANCHORS SHALL BE 2" ABOVE FINISHED CONCRETE.
2. CONDUITS SHALL BE 2" TO 3" ABOVE FINISHED CONCRETE.
3. CONDUIT TO BE RIGID STEEL AND HAVE THREADS SO THE GROUNDING BUSHINGS CAN BE INSTALLED.
4. CONCRETE SHALL BE LEVEL AND STEEL TROWEL FINISHED.
5. 5/8"x8' GROUND ROD SHALL BE INSTALLED 2"–6" BELOW FINISHED GRADE.
6. 3/4" P.V.C. CONDUIT SHALL END ADJACENT TO THE GROUND ROD.

REVISED: AUGUST 2008

SPECIFICATION REFERENCE NO. 635A	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 635.17
	CONTROLLER CABINET FOOTING FOR EIGHT PHASE SIGNAL	

CAST IRON COVER

12" JB – NEENAH FOUNDRY CO. R–5900–A SERIES OR ENGINEER APPROVED.

18" JB – NEENAH FOUNDRY CO. R–5900–C SERIES OR ENGINEER APPROVED.

24" JB – NEENAH FOUNDRY CO. R–5900–E SERIES OR ENGINEER APPROVED.

30" JB – NEENAH FOUNDRY CO. R–5900–G SERIES OR ENGINEER APPROVED.

NOTES:

ALLOW SUFFICIENT SLACK SO THAT CABLE ENDS CAN BE PULLED TO 30" ABOVE JUNCTION BOX.

NUMBER OF CONDUIT ENTRANCES VARIES WITH LOCATION OF JUNCTION BOX.

ANCHOR FRAME TO PIPE AS APPROVED BY THE ENGINEER.

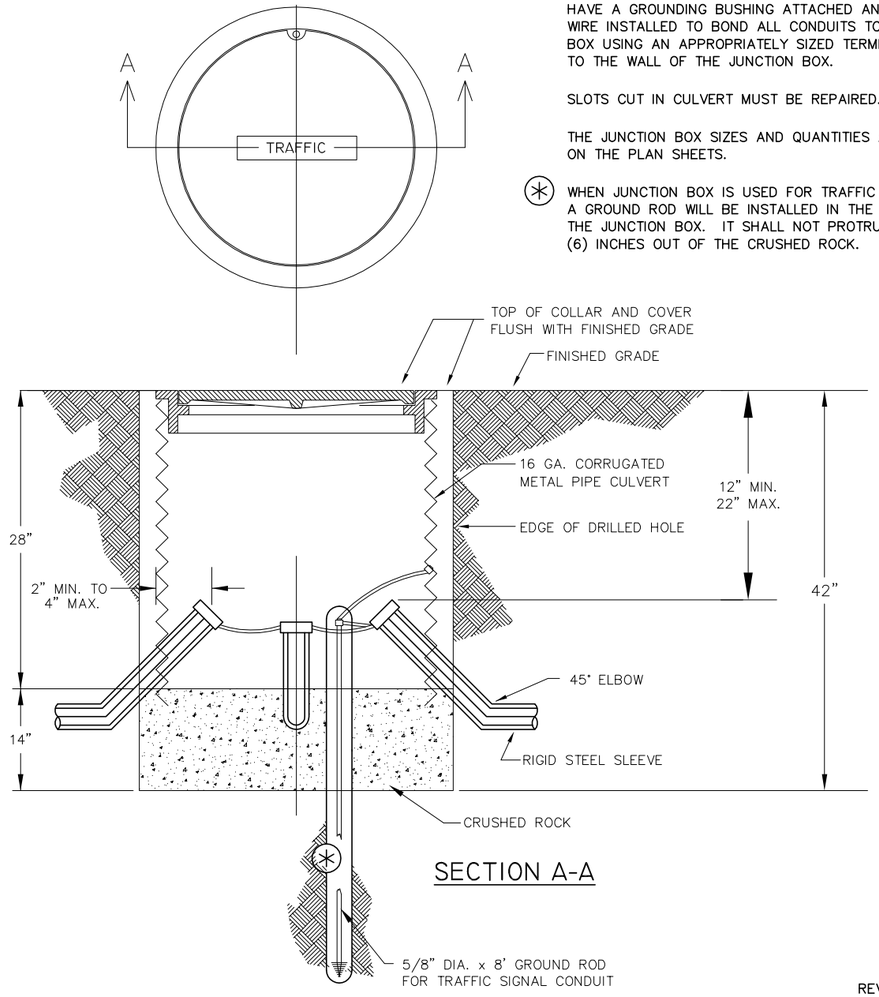
COVER SHALL BE STAMPED TRAFFIC.

ALL CONDUITS COMING INTO AND LEAVING THE JUNCTION BOX WILL BE RIGID STEEL AND FOR AT LEAST (5) FEET OUTSIDE OF THE JUNCTION BOX. THESE CONDUIT WILL HAVE A GROUNDING BUSHING ATTACHED AND A GROUNDING WIRE INSTALLED TO BOND ALL CONDUITS TO THE JUNCTION BOX USING AN APPROPRIATELY SIZED TERMINAL LUG BOLTED TO THE WALL OF THE JUNCTION BOX.

SLOTS CUT IN CULVERT MUST BE REPAIRED.

THE JUNCTION BOX SIZES AND QUANTITIES ARE SHOWN ON THE PLAN SHEETS.

(*) WHEN JUNCTION BOX IS USED FOR TRAFFIC SIGNAL CONDUIT A GROUND ROD WILL BE INSTALLED IN THE BOTTOM OF THE JUNCTION BOX. IT SHALL NOT PROTRUDE MORE THAN (6) INCHES OUT OF THE CRUSHED ROCK.



SECTION A-A

REVISED: JANUARY 2008

SPECIFICATION REFERENCE NO. 635A	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 635.31
	JUNCTION BOX - TRAFFIC	

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
Q19
OF
Q31

CAST IRON COVER

18" JB – NEENAH FOUNDRY CO. R–5900–C SERIES OR ENGINEER APPROVED.

24" JB – NEENAH FOUNDRY CO. R–5900–E SERIES OR ENGINEER APPROVED.

30" JB – NEENAH FOUNDRY CO. R–5900–G SERIES OR ENGINEER APPROVED.

NOTES:

ALLOW SUFFICIENT SLACK SO THAT CABLE ENDS CAN BE PULLED TO 30" ABOVE JUNCTION BOX.

NUMBER OF CONDUIT ENTRANCES VARIES WITH LOCATION OF JUNCTION BOX.

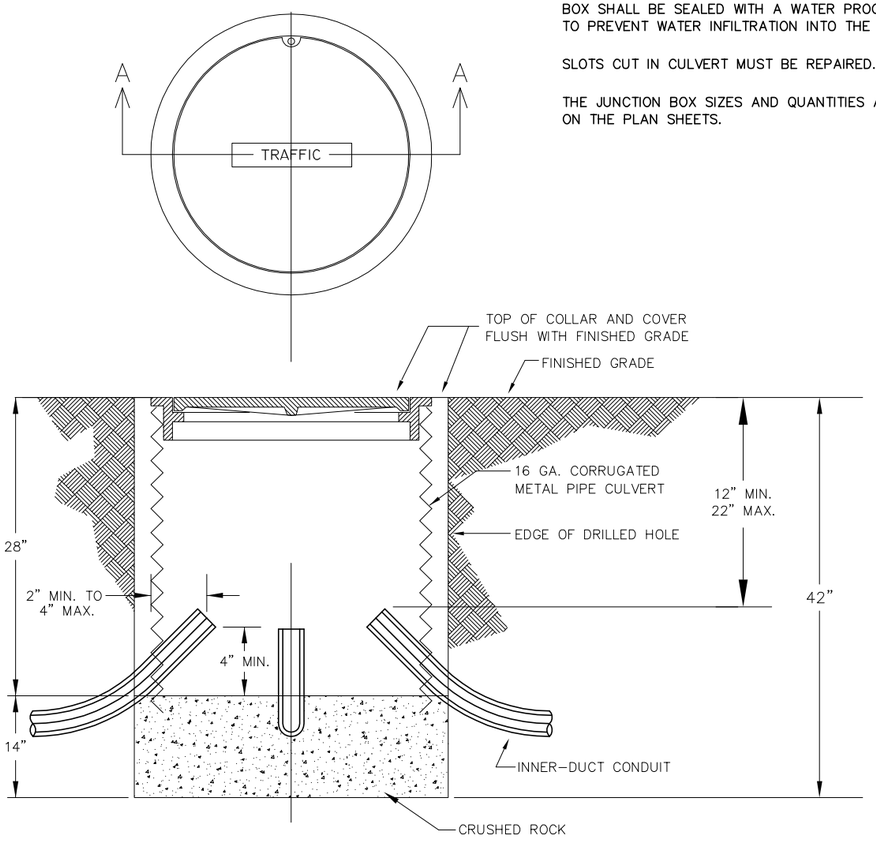
ANCHOR FRAME TO PIPE AS APPROVED BY THE ENGINEER.

COVER SHALL BE STAMPED TRAFFIC.

THE ENDS OF THE INNERDUCT CONDUIT IN THE JUNCTION BOX SHALL BE SEALED WITH A WATER PROOF SEALANT TO PREVENT WATER INFILTRATION INTO THE CONDUIT.

SLOTS CUT IN CULVERT MUST BE REPAIRED.

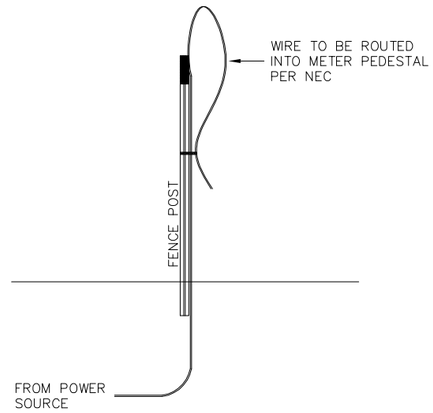
THE JUNCTION BOX SIZES AND QUANTITIES ARE SHOWN ON THE PLAN SHEETS.



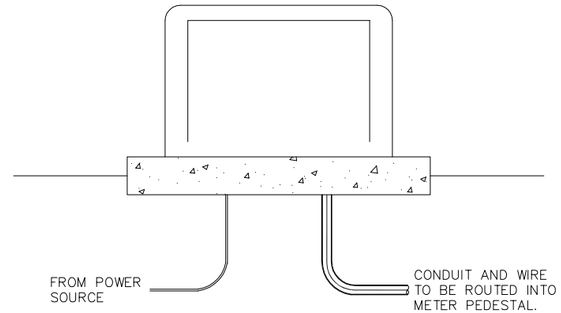
SECTION A-A

REVISED: SEPTEMBER 2010

SPECIFICATION REFERENCE NO. 635A	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 635.33
	JUNCTION BOX – INNERDUCTS	



STUB UP DETAIL



PAD MOUNTED DETAIL

NOTES:

ALL POWER OUTLET PANELS MUST BE FULLY BUSSED

MUST BE AN OUTDOOR ENCLOSURE (TYPE 3R)

MUST MEET ALL CONSTRUCTION SITE GROUND FAULT PROTECTION REQUIREMENTS

GROUNDING ROD FURNISHED BY CONTRACTOR

METER PEDESTAL FURNISHED BY CONTRACTOR

MILBANK U4322–O–5T95 TERMINAL, SINGLE METER PEDESTAL, OR EQUAL

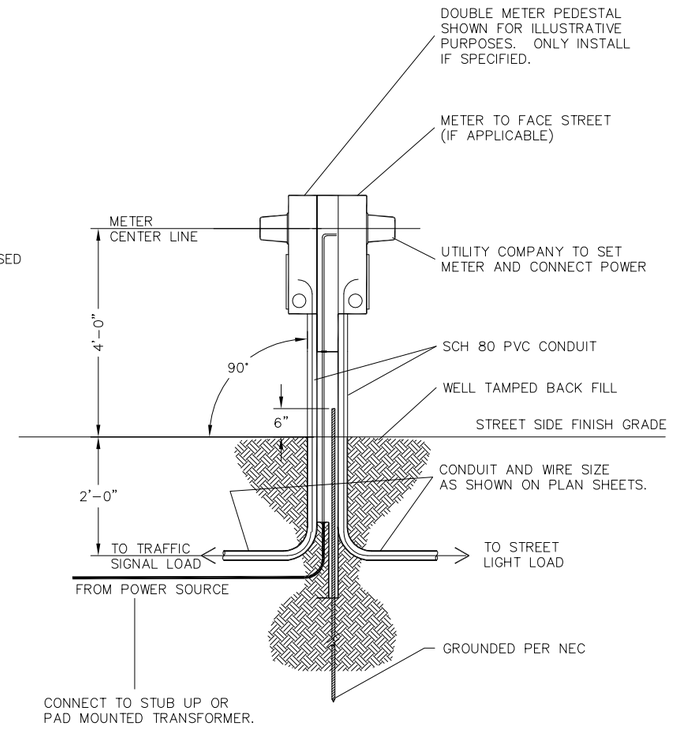
MILBANK U4323–O–5T95 TERMINAL, DOUBLE METER PEDESTAL, OR EQUAL

TRAFFIC SIGNAL POWER FEEDS SHALL INCLUDE ONE (1) 50 AMP SINGLE POLE BREAKER.

LIGHTING POWER FEEDS SHALL INCLUDE FOUR (4) 50 AMP SINGLE POLE BREAKER.

ALL MATERIALS AND LABOR ON SECONDARY SIDE OF TRANSFORMER SHALL BE SUPPLIED BY THE CONTRACTOR.

ALL WORK TO CONFORM WITH NATIONAL ELECTRIC CODE



REVISED: SEPTEMBER 2008

SPECIFICATION REFERENCE NO. 635A/B	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 635.42
	POWER FEED FROM GROUND POWER SOURCE	

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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
Q20
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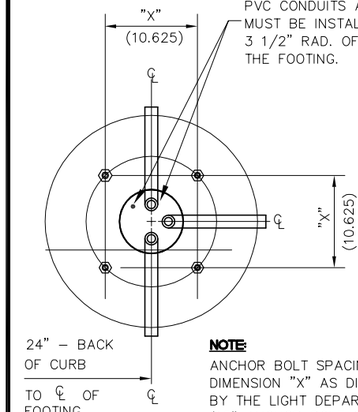
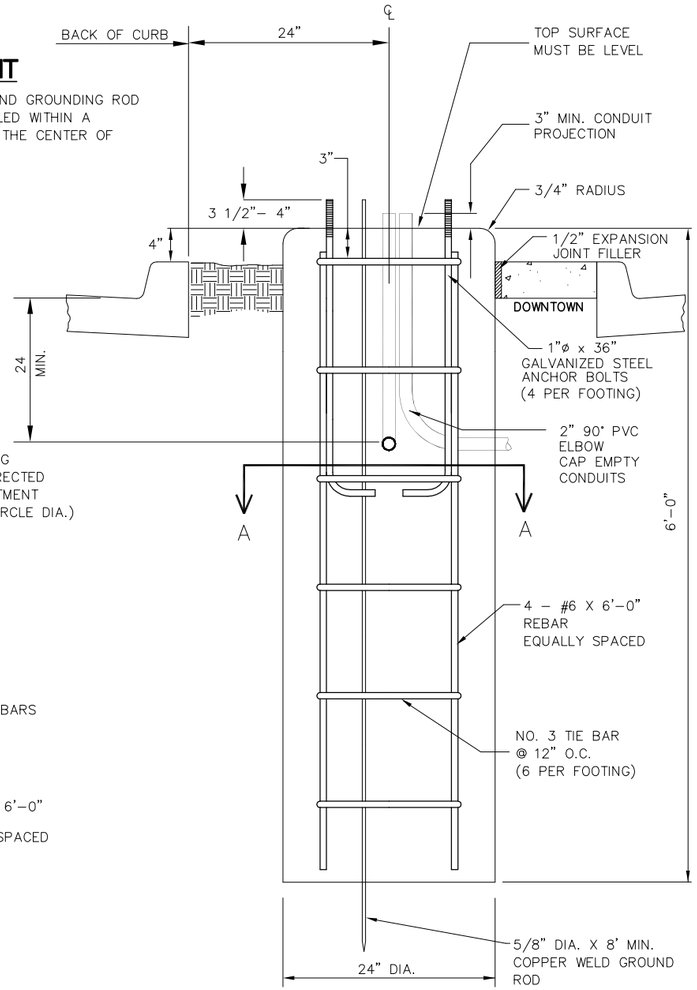
Q31

IMPORTANT

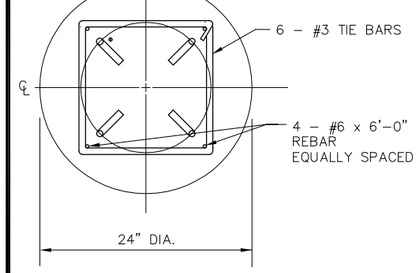
PVC CONDUITS AND GROUNDING ROD MUST BE INSTALLED WITHIN A 3 1/2" RAD. OF THE CENTER OF THE FOOTING.



NOTE:
ANCHOR BOLT SPACING DIMENSION "X" AS DIRECTED BY THE LIGHT DEPARTMENT (15" ANCHOR BOLT CIRCLE DIA.) CENTERED IN FOOTING



PLAN VIEW



SECTION A-A

GENERAL NOTES:

ALL CONCRETE SHALL BE CLASS M-6.

ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 40.

THE CONTRACTOR SHALL FURNISH THE COPPER GROUND ROD, THE CITY OF SIOUX FALLS WILL FURNISH THE ANCHOR BOLTS AND TEMPLATE FOR THE FOOTINGS.

COSTS OF CONDUIT AND ELBOWS SHOWN ON FOOTING DETAIL SHALL BE INCIDENTAL TO THE FOOTING BID ITEM(S).

CONDUITS SHALL BE SEALED WATER-TIGHT DURING ALL PHASES OF CONSTRUCTION UNTIL POLES ARE IN PLACE.

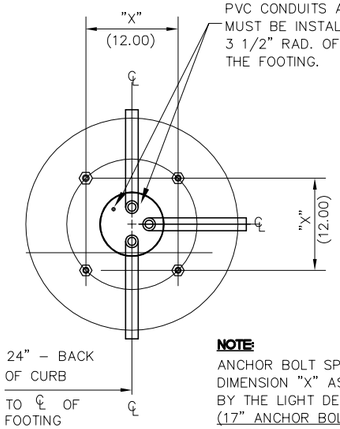
CONDUIT ENTRANCES: **ALWAYS ONE EMPTY CONDUIT ENTRANCE (FACING AWAY FROM CURB) BUT NO MORE THAN FOUR.**

REVISED: DECEMBER 2007

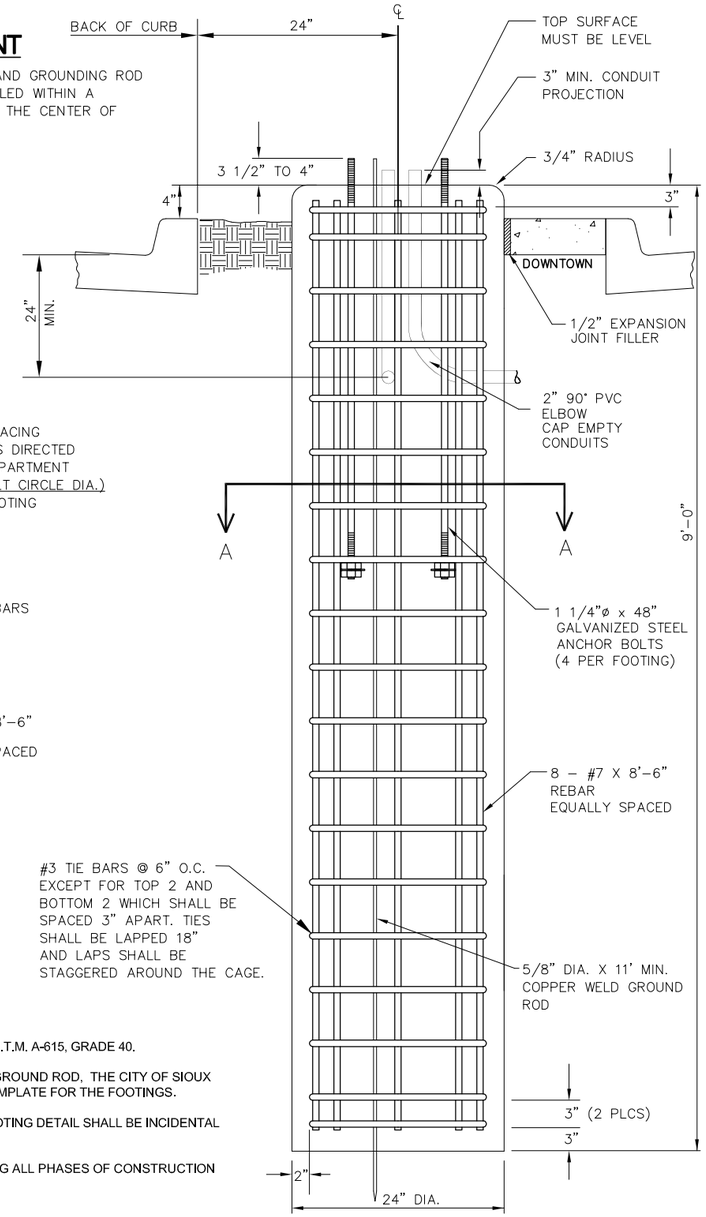
SPECIFICATION REFERENCE NO. 635B	CITY OF SIOUX FALLS ENGINEERING DIVISION STREET LIGHT FOOTING 40' MAXIMUM POLE HEIGHT	PLATE NUMBER 635.50

IMPORTANT

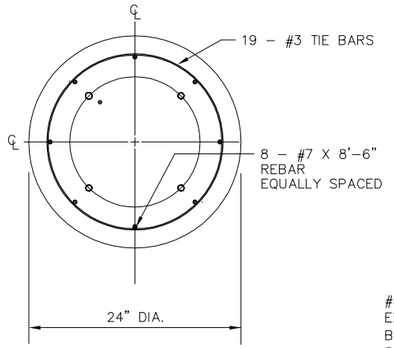
PVC CONDUITS AND GROUNDING ROD MUST BE INSTALLED WITHIN A 3 1/2" RAD. OF THE CENTER OF THE FOOTING.



NOTE:
ANCHOR BOLT SPACING DIMENSION "X" AS DIRECTED BY THE LIGHT DEPARTMENT (17" ANCHOR BOLT CIRCLE DIA.) CENTERED ON FOOTING



PLAN VIEW



SECTION A-A

GENERAL NOTES:

ALL CONCRETE SHALL BE CLASS M-6.

ALL REINFORCING STEEL SHALL CONFORM TO A.S.T.M. A-615, GRADE 40.

THE CONTRACTOR SHALL FURNISH THE COPPER GROUND ROD, THE CITY OF SIOUX FALLS WILL FURNISH THE ANCHOR BOLTS AND TEMPLATE FOR THE FOOTINGS.

COSTS OF CONDUIT AND ELBOWS SHOWN ON FOOTING DETAIL SHALL BE INCIDENTAL TO THE FOOTING BID ITEM(S).

CONDUITS SHALL BE SEALED WATER-TIGHT DURING ALL PHASES OF CONSTRUCTION UNTIL POLES ARE IN PLACE.

CONDUIT ENTRANCES: **ALWAYS ONE EMPTY CONDUIT ENTRANCE (FACING AWAY FROM CURB) BUT NO MORE THAN FOUR.**

ISSUED: DECEMBER 2007

SPECIFICATION REFERENCE NO. 635B	CITY OF SIOUX FALLS ENGINEERING DIVISION STREET LIGHT FOOTING 45' TO 50' POLE HEIGHT	PLATE NUMBER 635.52

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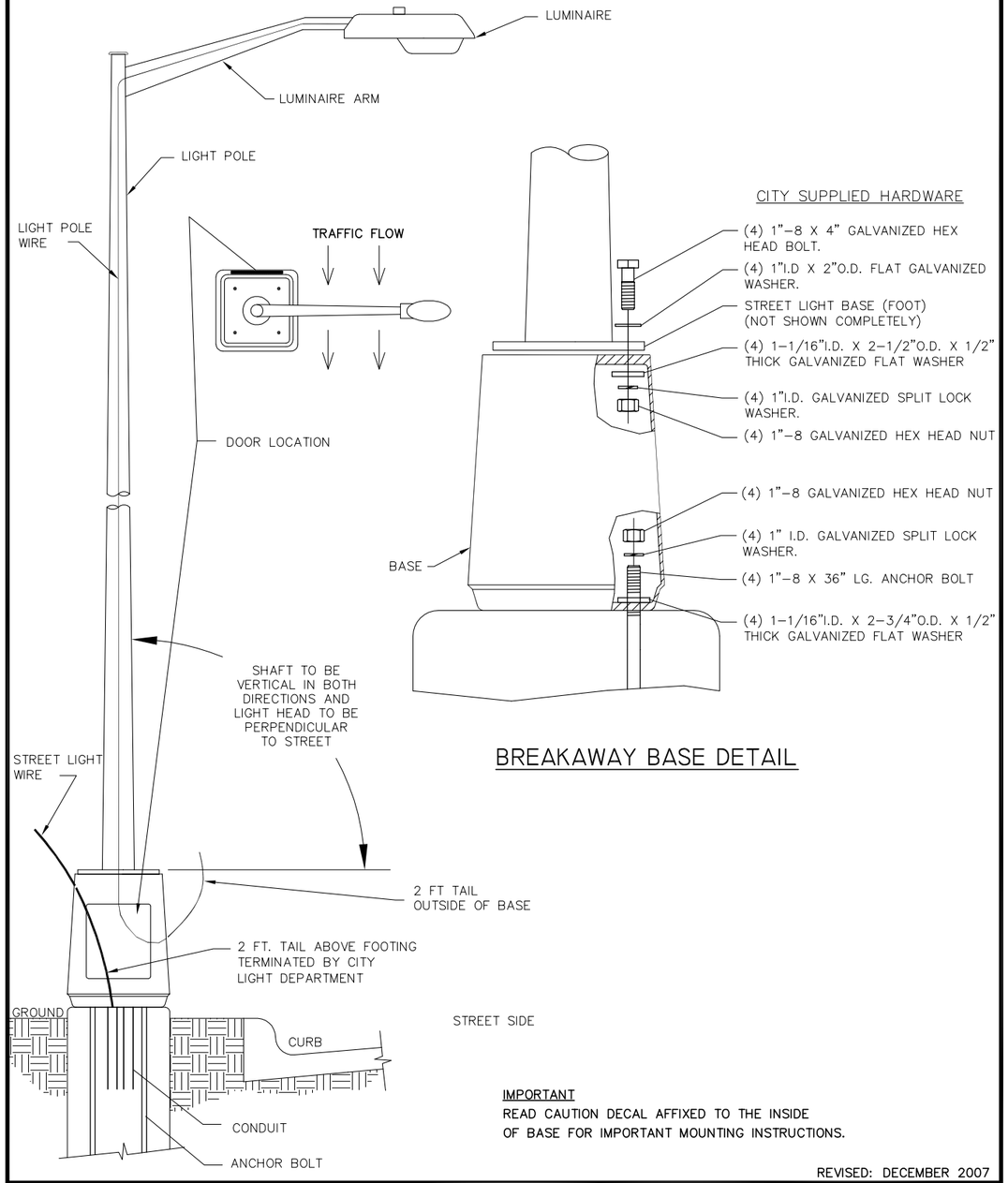
SHEET NO.
Q21
OF
Q31



BREAKAWAY BASE DETAIL

IMPORTANT
READ CAUTION DECAL AFFIXED TO THE INSIDE OF BASE FOR IMPORTANT MOUNTING INSTRUCTIONS.

REVISED: DECEMBER 2007

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
635B	STREET LIGHT ON STANDARD T-BASE	635.62

CAST IRON COVER

18" DIA JB – NEENAH FOUNDRY COMPANY R-5900-C SERIES OR ENGINEER APPROVED.

24" DIA JB – NEENAH FOUNDRY COMPANY R-5900-E SERIES OR ENGINEER APPROVED.

NOTES:

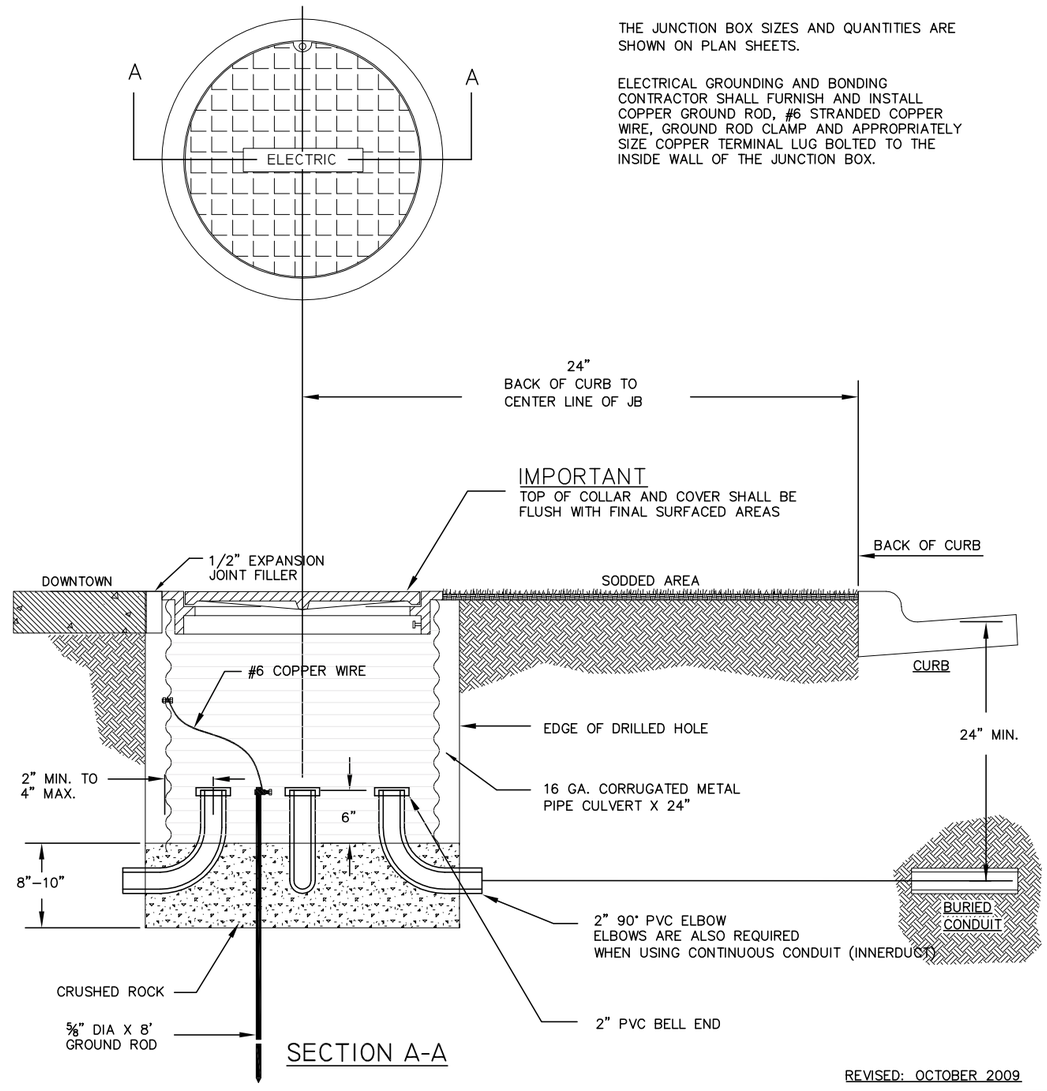
ALLOW SUFFICIENT SLACK SO THAT CABLE ENDS CAN BE PULLED TO 18" ABOVE JUNCTION BOX.

NUMBER OF CONDUIT ENTRANCES VARIES WITH LOCATION OF JUNCTION BOX.

COVER SHALL BE STAMPED ELECTRIC.

THE JUNCTION BOX SIZES AND QUANTITIES ARE SHOWN ON PLAN SHEETS.

ELECTRICAL GROUNDING AND BONDING CONTRACTOR SHALL FURNISH AND INSTALL COPPER GROUND ROD, #6 STRANDED COPPER WIRE, GROUND ROD CLAMP AND APPROPRIATELY SIZE COPPER TERMINAL LUG BOLTED TO THE INSIDE WALL OF THE JUNCTION BOX.



SECTION A-A

REVISED: OCTOBER 2009

SPECIFICATION REFERENCE	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
635B	JUNCTION BOX - LIGHTING	635.70

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
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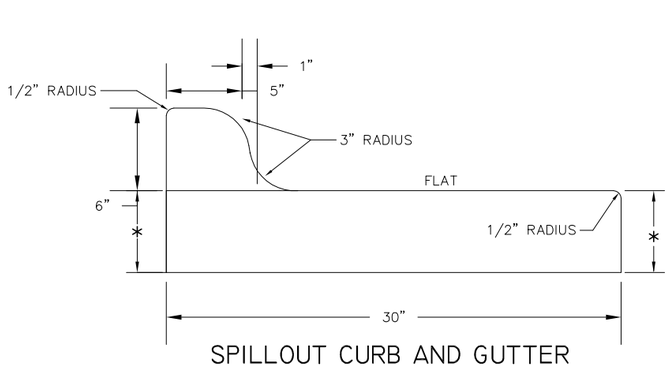
SHEET NO.
Q22
OF
Q31

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA



SPILLOUT CURB AND GUTTER

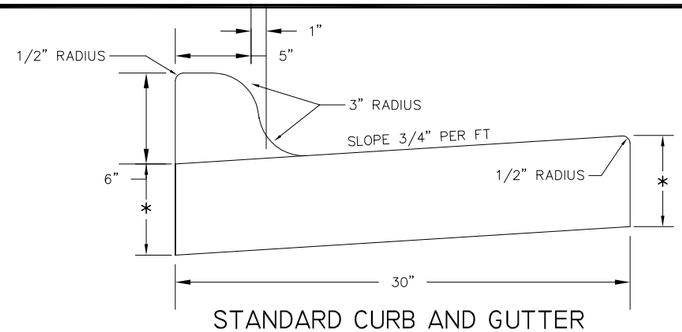
* THICKNESS SHALL BE EQUAL TO THE DEPTH OF THE ADJOINING PAVEMENT BUT NOT LESS THAN 6".

GENERAL

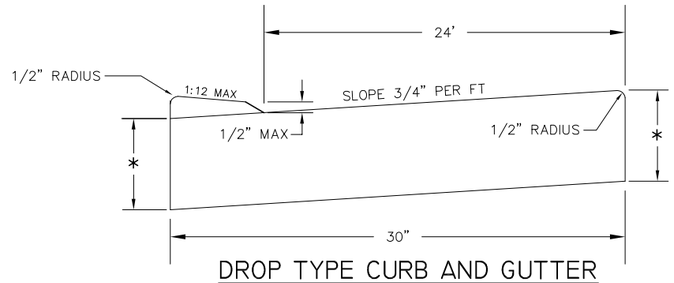
ON PCC PAVEMENT A LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS SHALL BE USED WHEN CURB AND GUTTER IS POURED SEPARATELY.

M-6 CONCRETE SHALL BE USED IN THE CONSTRUCTION OF THE CURB AND GUTTER.

SPILLOUT CURB AND GUTTER SECTION

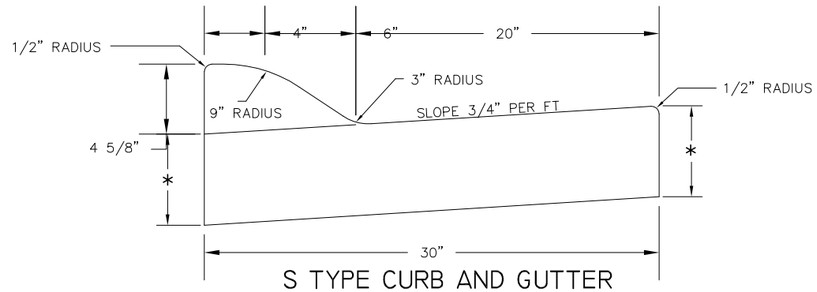


STANDARD CURB AND GUTTER



DROP TYPE CURB AND GUTTER

SEE PLATE NUMBER 650.04 FOR CURB OPENING REQUIREMENTS WHEN CURB AND GUTTER IS POURED IN LIEU OF FILLETS AT INTERSECTIONS.



S TYPE CURB AND GUTTER

* THICKNESS SHALL BE EQUAL TO THE DEPTH OF THE ADJOINING PAVEMENT BUT NOT LESS THAN 6".

GENERAL

ON PCC PAVEMENT A LONGITUDINAL CONSTRUCTION JOINT WITH TIE BARS SHALL BE USED WHEN CURB AND GUTTER IS POURED SEPARATELY.

M-6 CONCRETE SHALL BE USED IN THE CONSTRUCTION OF THE CURB AND GUTTER.

REVISED: JANUARY 2005

SPECIFICATION REFERENCE NO. 650	CITY OF SIOUX FALLS ENGINEERING DIVISION CONCRETE CURB AND GUTTER SECTION	PLATE NUMBER 650.01

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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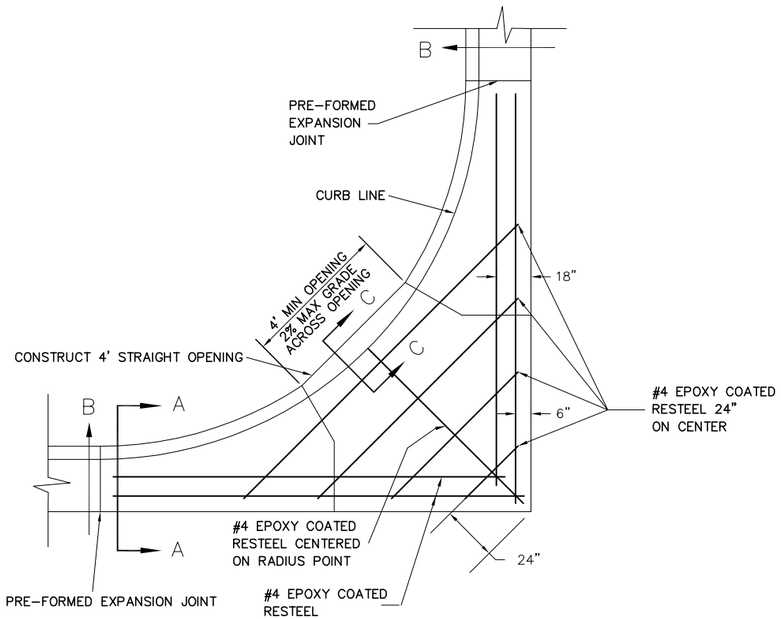
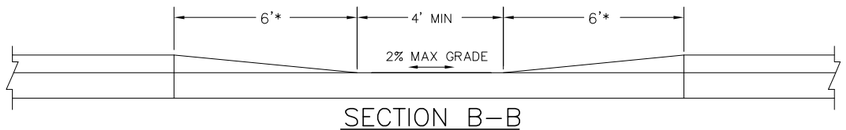
Q23
OF
Q31



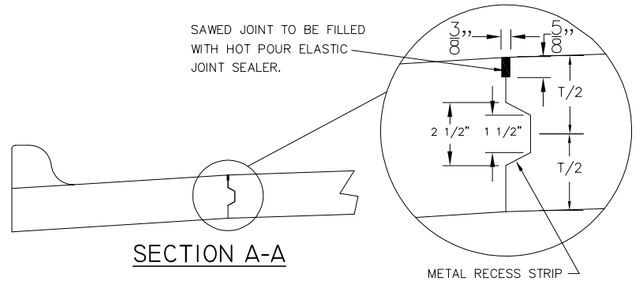
PLAN VIEW



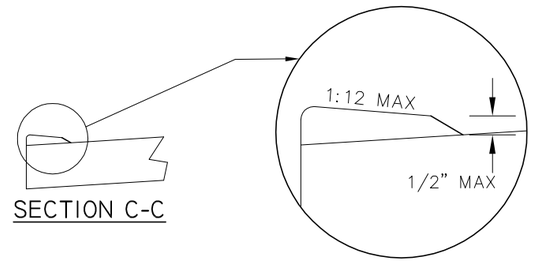
SECTION B–B

* REQUIREMENT: WHEN BACK OF CURB SIDEWALK IS GOING TO BE INSTALLED IT WILL BE NECCESSARY TO EXTEND THE TAPER LENGTH ACCORDING TO TABLE BELOW TO ACHIEVE THE 8.33% MAXIMUM RUNNING SLOPE ON THE SIDEWALK RAMP ADJACENT TO THE CURB. THE TAPER LENGTH WILL BE LIMITED TO 15' IN LENGTH.

	TAPER LENGTH 1:12 MAX	
STREET GRADE	LOW SIDE	HIGH SIDE
1%	6'–0"	7'–2"
2%	6'–0"	8'–4"
3%	6'–0"	10'–0"
4%	6'–0"	12'–6"
5% +	6'–0"	15'–0"



SECTION A-A



SECTION C-C

GENERAL NOTES

ALL REINFORCING STEEL SHALL HAVE 1–1/2" CLEARANCE AND SHALL CONFORM TO A.S.T.M. A615, GRADE 40.

M–6 CONCRETE SHALL BE USED IN THE CONSTRUCTION OF THE FILLETS.

THE CURB SHALL BE MONOLITHIC WITH THE FILLET. NO SEPARATE PAYMENT WILL BE MADE FOR THE CURB AS IT WILL BE CONSIDERED PART OF THE FILLET.

FILLET DEPTH SHALL BE EQUAL TO THE DEPTH OF ADJOINING PAVEMENT BUT NOT LESS THAN 6".

FILLETS ADJACENT TO PCC PAVEMENT SHALL HAVE A KEYWAY CONSTRUCTION JOINT WITHOUT TIE BAR.

FILLETS SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE YARD OF FILLET SECTION. PAYMENT INCLUDES ALL LABOR AND MATERIALS NECESSARY TO COMPLETE THE WORK.

REVISED: JANUARY 2005

CITY OF SIOUX FALLS
ENGINEERING DIVISION
CONCRETE FILLET SECTION AND CURB OPENING

SPECIFICATION REFERENCE NO.	PLATE NUMBER
650	650.04

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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SHEET NO.
Q24
OF
Q31

STANDARD REQUIREMENTS

1) ALL RAMPS ARE REQUIRED TO HAVE A LANDING AREA WITH NO MORE THAN A 2% SLOPE IN ANY DIRECTION. THE LANDING AREA SHALL BE A MINIMUM OF 4' BY 4'. TYPICALLY, THE LANDING AREA SHALL BE LOCATED WHERE A PEDESTRIAN MAKES A TURNING MOVEMENT TO LINE UP WITH THE CURB OPENING. FOR EXAMPLE, THE LANDING AREA SHALL BE LOCATED WHERE 2 BOULEVARD SIDEWALKS JOIN AND CONNECT TO THE RAMP. THE LANDING AREA ON A CURB SIDE SIDEWALK SHALL BE LOCATED AT THE CURB OPENING. IT MAY BE NECESSARY TO HAVE MULTIPLE LANDING AREAS WHEN COMBINING BOULEVARD AND CURBSIDE SIDEWALKS. GRADE CHANGES FROM THE CONNECTING SIDEWALK OR RAMP TO THE LANDING AREA MUST BE PERPENDICULAR TO THE DIRECTION OF TRAVEL.

2) ALL RAMPS HAVE A MAXIMUM RUNNING SLOPE OF 8.33% (1" PER FOOT) WITH THE FOLLOWING EXCEPTION: ON BACK OF CURB SIDEWALKS, THE CURB RAMP LENGTH MAY NEED TO BE EXTENDED ACCORDING TO TABLE B TO ACHIEVE THE MAXIMUM SLOPE OF 8.33% THE CURB RAMP LENGTH WILL BE LIMITED TO A MAXIMUM LENGTH OF 15'.

3) ALL SIDEWALKS AND RAMPS HAVE A MAXIMUM CROSS SLOPE OF 2% (1/4" PER FOOT).

4) INSTALL PREMANUFACTURED DETECTABLE WARNING PANELS IN ACCORDANCE WITH MANUFACTURE'S RECOMMENDATIONS. THE CITY ENGINEER'S OFFICE HAS AN APPROVED LIST OF MANUFACTURES ON FILE. SEE DETAIL A AND TABLE A FOR DETECTABLE WARNING PANEL SIZE AND LOCATION. DETECTABLE WARNING PANELS SHALL BE AN APPROVED RED COLOR EXCEPT IN LOCATIONS WHERE THE ADJOINING CONCRETE SIDEWALK IS RED OR DARK IN COLOR. AT THESE LOCATIONS THE DETECTABLE WARNING PANEL SHALL BE A CONTRASTING COLOR APPROVED BY THE CITY ENGINEER. THE SIDEWALK DEPTH SHALL BE A MINIMUM OF 6" FOR A 2' AREA ADJACENT TO THE DETECTABLE WARNING PANEL.

5) OBSTRUCTIONS SUCH AS SIGNAL POLES, LIGHT POLES, TRAFFIC CONTROLLER CABINETS, ETC. CAN NOT BE LOCATED IN THE LANDING AREA OR THE RAMP SLOPE. ALL SIDEWALKS SHALL HAVE A 4' MINIMUM WIDTH FREE OF OBSTRUCTIONS TO ACCOMMODATE PEDESTRIAN TRAVEL.

6) DEPENDING ON ADJOINING GRADES AND EXISTING CONDITIONS A CURB WITH A MAXIMUM HEIGHT OF 6" MAY NEED TO BE INSTALLED ON THE BACK OF THE LANDING AREA AND CONNECTING SIDEWALK. THIS CURB MAY ALSO NEED TO BE INSTALLED TO ENSURE STREET DRAINAGE DOES NOT OVERFLOW THE AREA BEHIND THE LANDING AREA AND RAMP.

GENERAL NOTES

THE CONTRACTOR MUST HAVE AN ELECTRONIC LEVEL ON SITE TO ENSURE THE SPECIFIED SLOPES ARE MAINTAINED.

CARE SHALL BE TAKEN TO ENSURE THE SURFACE OF THE DETECTABLE WARNING PANEL IS CLEAN AND FREE OF CURING COMPOUND AND CONCRETE RESIDUE.

SURFACE TEXTURE OF THE RAMP SHALL BE OBTAINED BY COARSE BROOMING TRANSVERSE TO THE SLOPE OF THE RAMP.

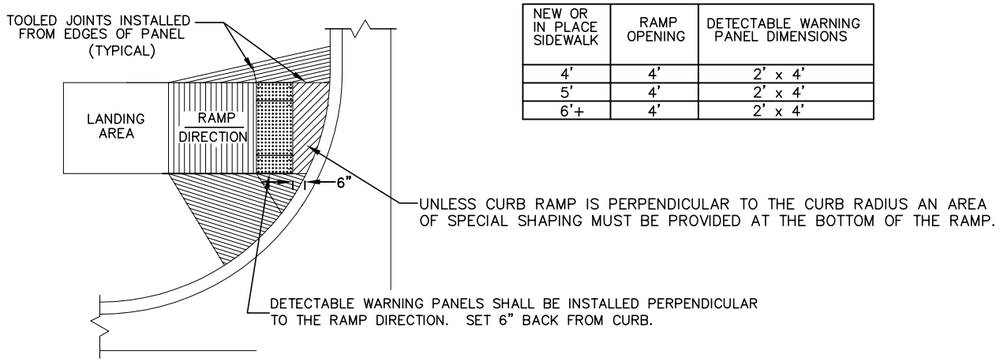
JOINTS SHALL BE TOOLED INTO THE CONCRETE ADJACENT TO THE DETECTABLE WARNING PANELS TO ALLEVIATE POSSIBLE CORNER CRACKING (SEE DETAIL A).

THERE WILL BE NO SEPARATE PAYMENT FOR THE SIDEWALK LANDING AREA OR RAMP. THE SIDEWALK LANDING AREA AND RAMP, INCLUDING THE DETECTABLE WARNING PANEL AREA, SHALL BE MEASURED AND PAID FOR AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR THE CORRESPONDING CONCRETE SIDEWALK BID ITEM. NO ADDITIONAL PAYMENT WILL BE MADE FOR THE ADDITIONAL CONCRETE DEPTH ADJACENT TO THE DETECTABLE WARNING PANEL.

THE DETECTABLE WARNING PANEL SHALL BE MEASURED TO THE NEAREST SQUARE FOOT. PAYMENT WILL BE AT THE CONTRACT UNIT PRICE PER SQUARE FOOT FOR THE DETECTABLE WARNING PANELS. PAYMENT SHALL INCLUDE ALL COSTS FOR MATERIALS, LABOR, AND EQUIPMENT NECESSARY FOR THE INSTALLATION OF THE DETECTABLE WARNING PANELS.

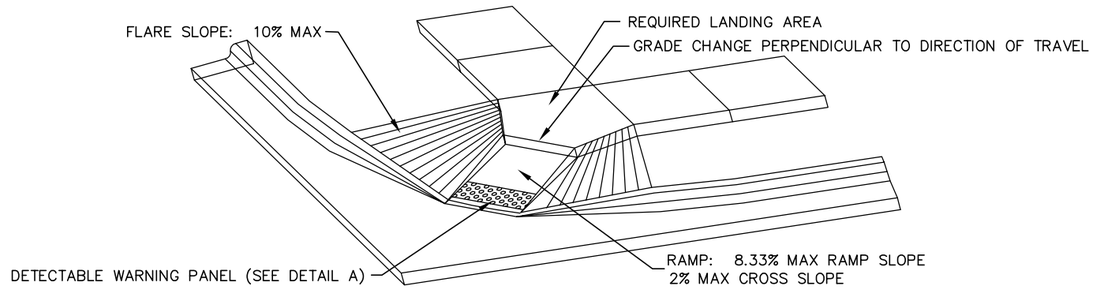
TABLE A

NEW OR IN PLACE SIDEWALK	RAMP OPENING	DETECTABLE WARNING PANEL DIMENSIONS
4'	4'	2' x 4'
5'	4'	2' x 4'
6'+	4'	2' x 4'



DETAIL A

THE FOLLOWING PERSPECTIVE VIEWS ARE ILLUSTRATIONS OF DIFFERENT TYPES OF INSTALLATIONS INCORPORATING THE MANDATORY REQUIREMENTS.



PERSPECTIVE VIEW - BOULEVARD SIDEWALK RAMP

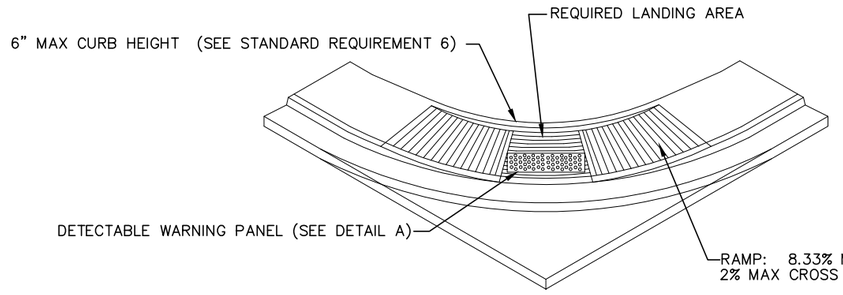
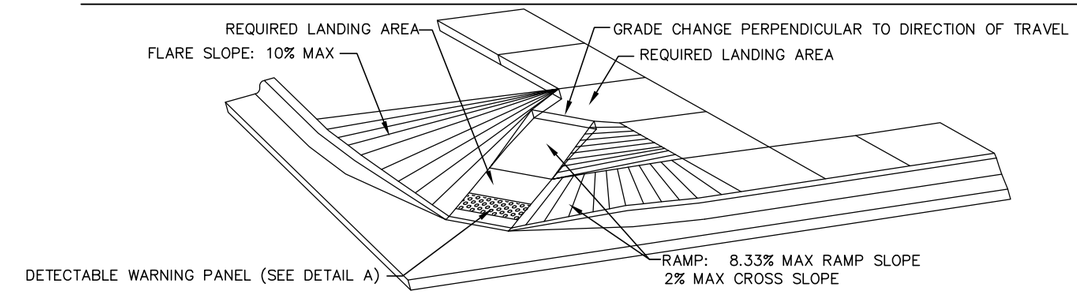


TABLE B
FOR CURBSIDE SIDEWALK ONLY

	RAMP LENGTH 8.33% MAX SLOPE	
STREET GRADE	LOW SIDE	HIGH SIDE
1%	6'-0"	7'-2"
2%	6'-0"	8'-4"
3%	6'-0"	10'-0"
4%	6'-0"	12'-6"
5% +	6'-0"	15'-0"

PERSPECTIVE VIEW - CURBSIDE SIDEWALK RAMP



PERSPECTIVE VIEW - BOULEVARD AND CURBSIDE COMBO SIDEWALK RAMP

ISSUED: JANUARY 2005

CITY OF SIOUX FALLS
ENGINEERING DIVISION

SIDEWALK RAMPS AND DETECTABLE WARNING PANELS

SPECIFICATION REFERENCE NO.	PLATE NUMBER
651	651.02

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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BY: DATE:

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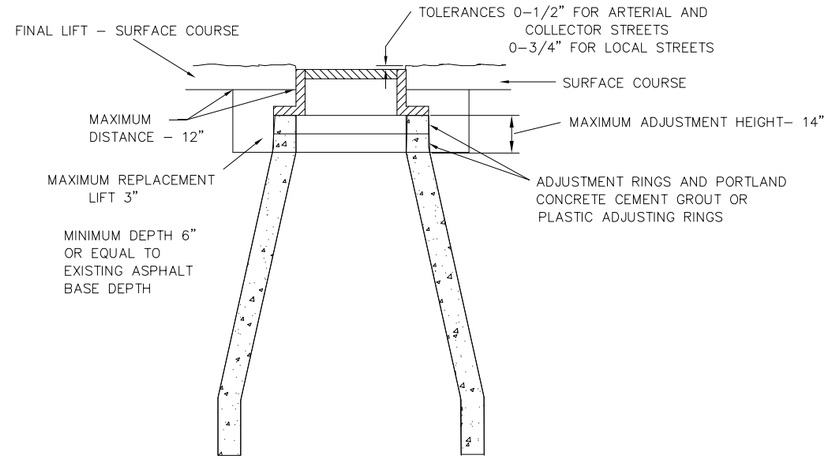
SHEET NO.
Q25
OF
Q31



NOTE:
1. ASPHALT CONCRETE – MANHOLE AND CASTING SHALL BE ADJUSTED TO FINAL GRADE PRIOR TO PLACEMENT OF SURFACE COURSE.

2. CONCEALED PICK HOLES AND THE SEAL BETWEEN THE FRAME AND COVER SHALL BE PROTECTED FROM ASPHALT, CONCRETE PAVEMENT, CHIP SEAL AND SOIL. IT SHALL BE THE CONTRACTORS RESPONSIBILITY TO PROVIDE A SYSTEM TO PREVENT MATERIAL FROM ENTERING THE CONCEALED PICK HOLE AND FRAME AND COVER SEAL DURING THE WORK.

3. FOR CHIP SEAL PROJECTS, THE ENTIRE MANHOLE COVER AND FRAME SHALL BE PROTECTED FROM THE CHIP SEAL INSTALLATION.

REVISED: OCTOBER 2004

SPECIFICATION REFERENCE NO. 671	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 671.01
	MANHOLE CASTING AND COVER ADJUSTMENT	

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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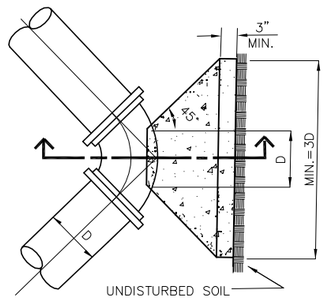
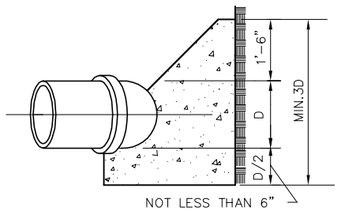
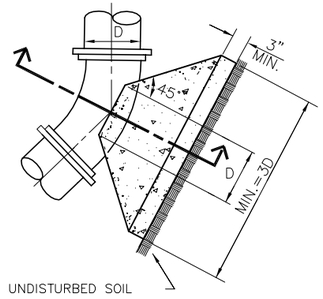


PLAN VIEW

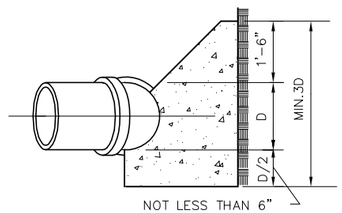


SECTION VIEW

90 - DEGREE BEND

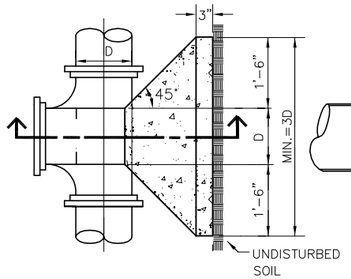


PLAN VIEW

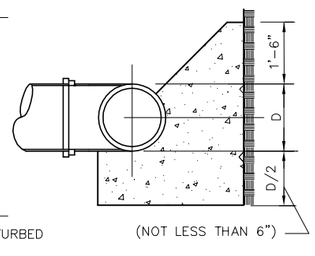


SECTION VIEW

11 1/4 - DEGREE, 22 1/2 - DEGREE AND 45 - DEGREE BENDS

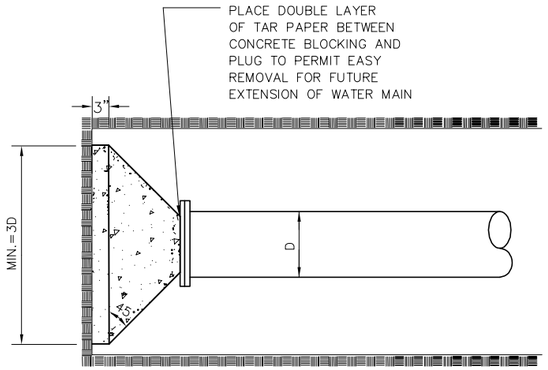


PLAN VIEW



SECTION VIEW

TEE



S.J. PLUG

CONCRETE THRUST BLOCK

REVISED: NOVEMBER 2004

CITY OF SIOUX FALLS
ENGINEERING DIVISION

CONCRETE THRUST BLOCK

SPECIFICATION REFERENCE NO.	PLATE NUMBER
900	900.01

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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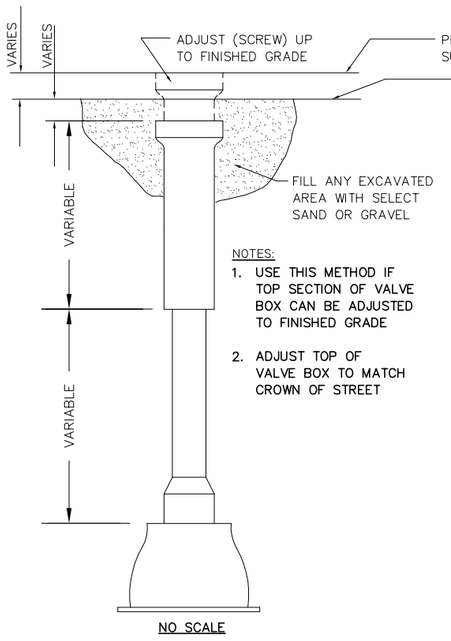
SHEET NO.
Q27
OF
Q31

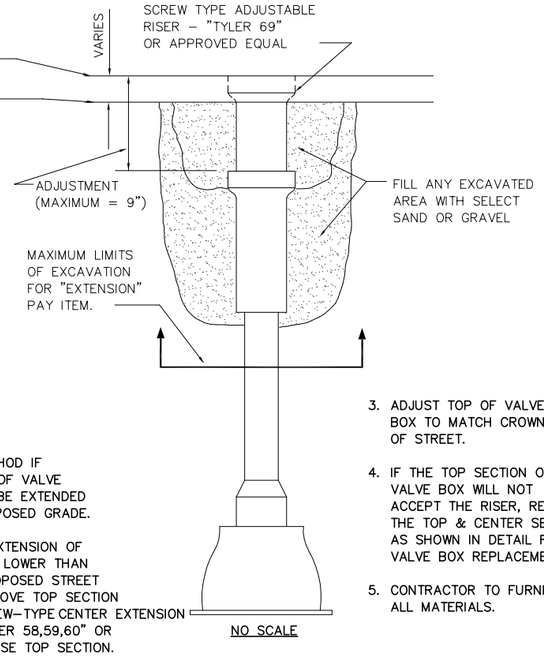


NOTES:

1. USE THIS METHOD IF TOP SECTION OF VALVE BOX CAN BE ADJUSTED TO FINISHED GRADE
2. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET

NO SCALE

VALVE BOX ADJUSTMENT



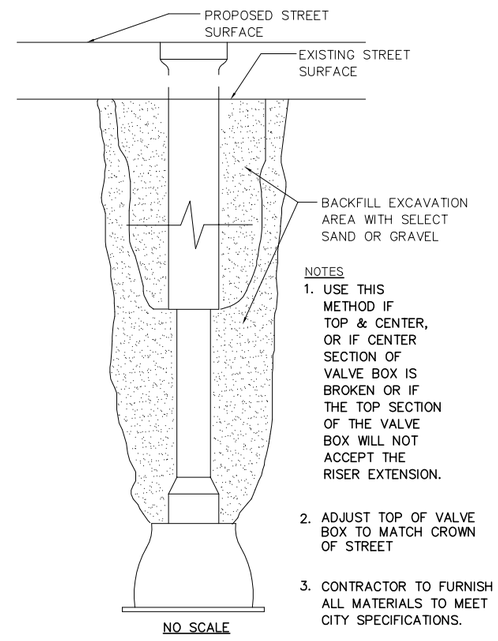
NOTES:

1. USE THIS METHOD IF TOP SECTION OF VALVE BOX CANNOT BE EXTENDED TO MEET PROPOSED GRADE.
2. IF MAXIMUM EXTENSION OF VALVE BOX IS LOWER THAN 9" BELOW PROPOSED STREET SURFACE, REMOVE TOP SECTION & ADD A SCREW–TYPE CENTER EXTENSION SECTION; "TYLER 58,59,60" OR EQUAL. RE–USE TOP SECTION.
3. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET.
4. IF THE TOP SECTION OF VALVE BOX WILL NOT ACCEPT THE RISER, REPLACE THE TOP & CENTER SECTION AS SHOWN IN DETAIL FOR VALVE BOX REPLACEMENT.
5. CONTRACTOR TO FURNISH ALL MATERIALS.

NO SCALE

VALVE BOX EXTENSION

(OR REPLACEMENT OF TOP SECTION)



NOTES

1. USE THIS METHOD IF TOP & CENTER, OR IF CENTER SECTION OF VALVE BOX IS BROKEN OR IF THE TOP SECTION OF THE VALVE BOX WILL NOT ACCEPT THE RISER EXTENSION.
2. ADJUST TOP OF VALVE BOX TO MATCH CROWN OF STREET
3. CONTRACTOR TO FURNISH ALL MATERIALS TO MEET CITY SPECIFICATIONS.

NO SCALE

VALVE BOX INSTALLATION

VALVE BOX ADJUSTMENT / REPLACEMENT

REVISED: NOVEMBER 2004

CITY OF SIOUX FALLS
ENGINEERING DIVISION
VALVE BOX
ADJUSTMENT/ REPLACEMENT

SPECIFICATION REFERENCE NO.	PLATE NUMBER
900	900.02

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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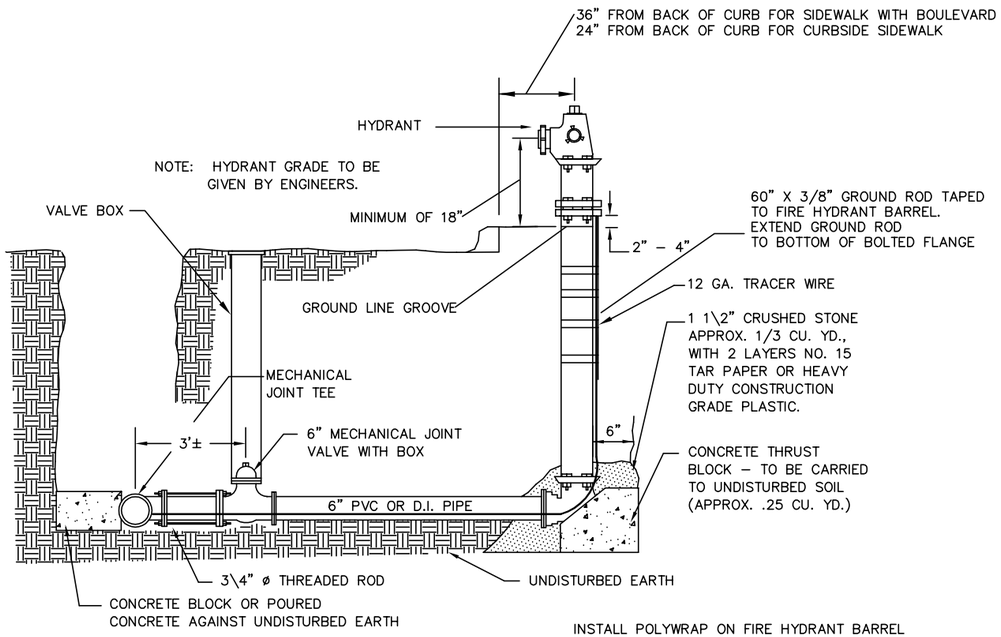
SHEET NO.
Q28
OF
Q31

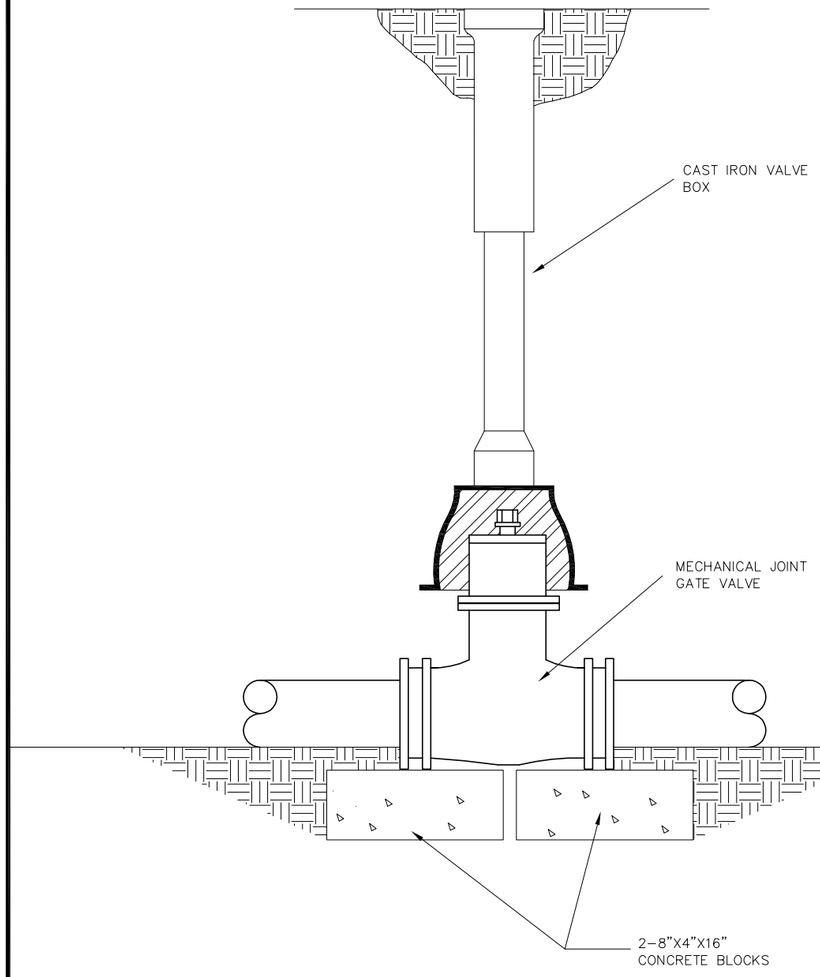
HYDRANT CONNECTION



INSTALL POLYWRAP ON FIRE HYDRANT BARREL TO THE GROUND SURFACE BEFORE INSTALLING TRACER WIRE SYSTEM. DO NOT COVER WEEP HOLES WITH POLYWRAP.

REVISED: NOVEMBER 2006

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
900	HYDRANT CONNECTION	900.06



PVC GATE VALVE INSTALLATION

NO SCALE

REVISED: JANUARY 1999

SPECIFICATION REFERENCE NO.	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER
900	PVC GATE VALVE INSTALLATION	900.08

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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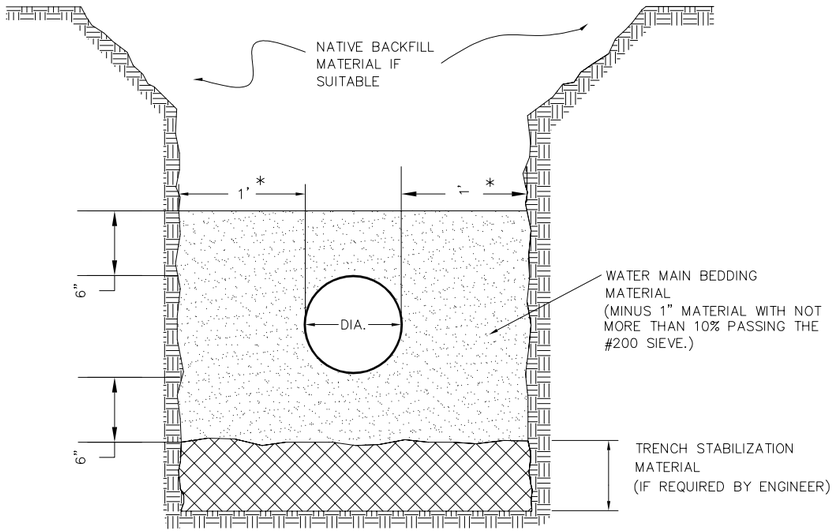
SHEET NO.
Q29
OF
Q31

WATER MAIN BEDDING DETAIL

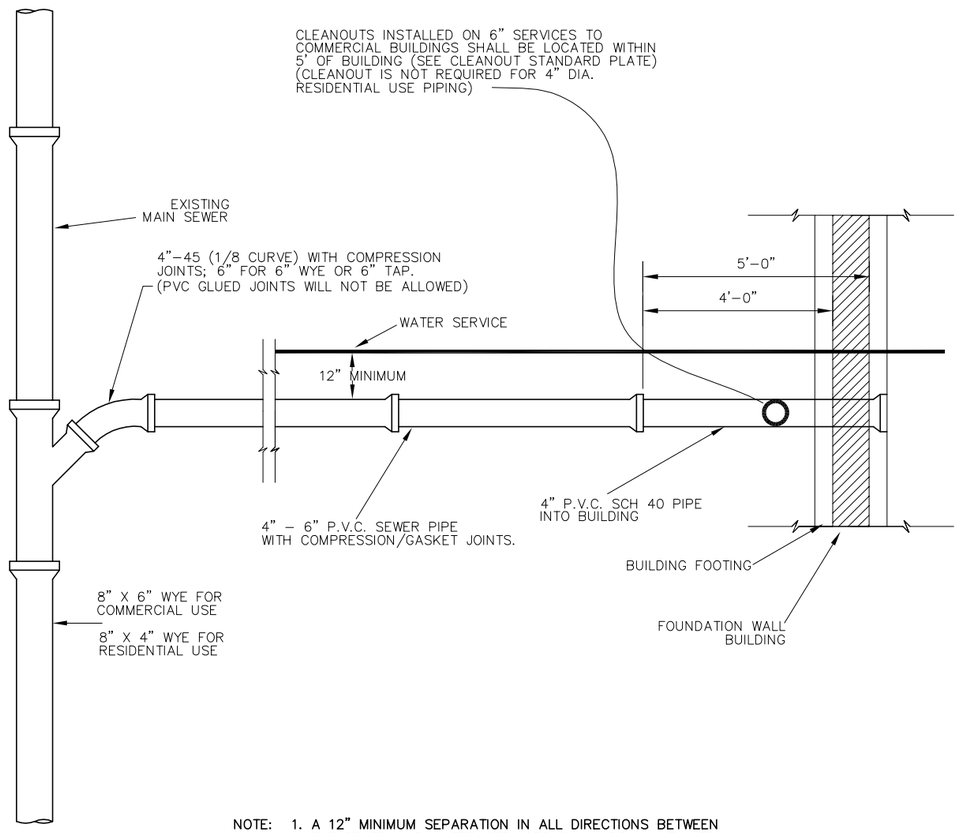


PIPE SIZE DIAMETER	TRENCH WIDTH	TRENCH HEIGHT	TRENCH AREA	PIPE AREA	WATER MAIN BEDDING MAT. AREA	WATER MAIN BEDDING MAT. TONS/LF
4"	28"	16"	3.11 SQ.FT.	.09 SQ.FT.	3.02 SQ.FT.	0.21
6"	30"	18"	3.75 SQ.FT.	.20 SQ.FT.	3.55 SQ.FT.	0.25
8"	32"	20"	4.44 SQ.FT.	.35 SQ.FT.	4.10 SQ.FT.	0.29
10"	34"	22"	5.19 SQ.FT.	.55 SQ.FT.	4.65 SQ.FT.	0.33
12"	36"	24"	6.00 SQ.FT.	.79 SQ.FT.	5.22 SQ.FT.	0.37
16"	40"	28"	7.78 SQ.FT.	1.40 SQ.FT.	6.38 SQ.FT.	0.45
20"	44"	32"	9.78 SQ.FT.	2.18 SQ.FT.	7.60 SQ.FT.	0.53
24"	48"	36"	12.00 SQ.FT.	3.14 SQ.FT.	8.86 SQ.FT.	0.62
30"	60"	42"	17.50 SQ.FT.	4.91 SQ.FT.	12.59 SQ.FT.	0.88

* IF >30" USE DIA./2 ON EACH SIDE OF WATER MAIN PIPE.
* LENGTH BASED ON ONE (1) FOOT OF MAIN.

REVISED: MAY 2007

SPECIFICATION REFERENCE NO. 900	CITY OF SIOUX FALLS ENGINEERING DIVISION WATER MAIN BEDDING DETAIL	PLATE NUMBER 900.12



NOTE: 1. A 12" MINIMUM SEPARATION IN ALL DIRECTIONS BETWEEN THE SEWER AND WATER SERVICES SHALL BE MAINTAINED FROM THE PROPERTY LINE TO THE BUILDING AT ALL TIMES.

2. INSTALLATION IS SIMILAR WHERE 6" SERVICE IS REQUIRED.

REVISED: NOVEMBER 2001

SPECIFICATION REFERENCE NO. 950	CITY OF SIOUX FALLS ENGINEERING DIVISION TYPICAL SANITARY SEWER SERVICE	PLATE NUMBER 950.12

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

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Q30
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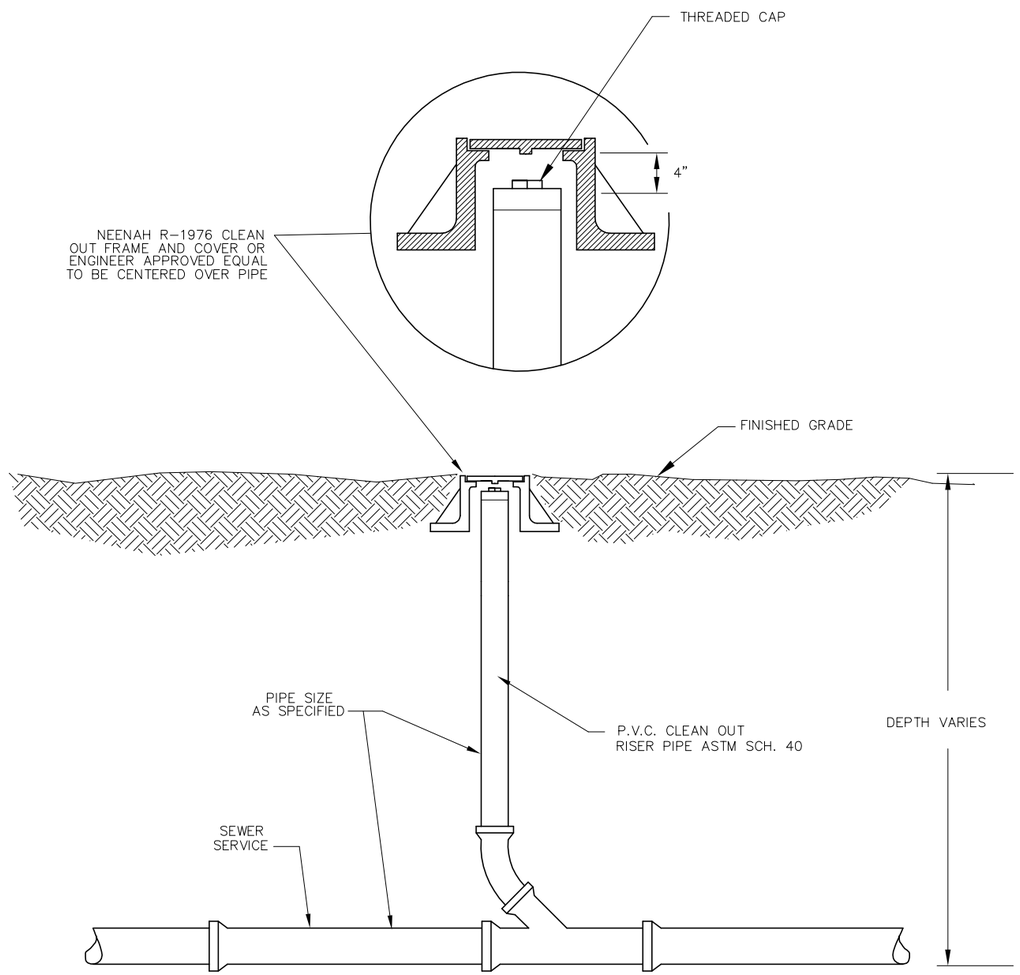
Q31



NOTE: FRAME AND COVER ARE NOT REQUIRED WITHIN 5' OF THE BUILDING

REVISED: NOVEMBER 2001

SPECIFICATION REFERENCE NO. 950	CITY OF SIOUX FALLS ENGINEERING DIVISION	PLATE NUMBER 950.13
	CLEANOUT MANHOLE FRAME AND COVER	

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SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

DETAILS / STANDARD PLATES

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SHEET NO.
Q31
OF
Q31

LEGEND OF SYMBOLS

	EXISTING FIRE HYDRANT
------F------	EXISTING VALVE & BOX
H--	EXISTING TEE
-----▶-----	EXISTING REDUCER
-----⊣⊢-----	EXISTING SLEEVE
--⊣⊢--	EXISTING CROSS
Ⓦ	EXISTING WATER MANHOLE
Ⓢ	EXISTING SANITARY MANHOLE
○LH	EXISTING SANITARY LAMPHOLE
Ⓓ	EXISTING JUNCTION BOX
	EXISTING APPROACH
	EXISTING SIDEWALK
	EXISTING DROP INLET
	EXISTING CULVERT
-----1400-----	EXISTING CONTOURS
---- 8" S VCP ---	EX. SANITARY SEWER (SIZE/TYPE/MATERIAL)
	MATERIAL FOR LINES:
VCP	VITRIFIED CLAY PIPE
PVC	SOLID WALL POLYVINYL CHLORIDE PIPE
PVC TRUSS	POLYVINYL CHLORIDE TRUSS COMPOSITE PIPE
ABS TRUSS	ACRYLONITRILE-BUTADIENNE-STYRENE COMPOSITE
PVC CP	CLOSED PROFILE WALL POLYVINYL CHLORIDE PIPE
DIP	DUCTILE IRON PIPE
RCP	REINFORCED CONCRETE PIPE
CIP	CAST IRON PIPE
CIPP	CURED IN PLACE PIPE
PE	POLYETHYLENE PIPE
-----8"W-----	EXISTING WATER MAIN & SIZE
----18"RCP----	EXISTING STORM SEWER & SIZE

----8"SAN-----	GRAVITY SANITARY SEWER (TYPE/SIZE)
-----SFM-----	FORCE MAIN SANITARY SEWER
-----CS------	COMBINED SEWER
	WATER SHUTOFF
-----8"W-----	WATER MAIN & SIZE
	CLEAN OUT
	CAP END
Ⓢ	PROPOSED SANITARY MANHOLE
Ⓥ	PROPOSED VALVE & BOX
Ⓣ	PROPOSED TEE
Ⓧ	PROPOSED CROSS
Ⓡ	PROPOSED REDUCER OR INCREASER
Ⓢ	PROPOSED SLEEVE
Ⓗ	PROPOSED FIRE HYDRANT
90B	PROPOSED 90° BEND
45B	PROPOSED 45° BEND
22B	PROPOSED 22 1/2° BEND
11B	PROPOSED 11 1/4° BEND
Ⓟ	PROPOSED M.J. PLUG
AO	PROPOSED AIR RELEASE MANHOLE
ST	PROPOSED SMITH'S TAP
------2"G------	GAS MAIN & SIZE
------UT------	UNDERGROUND TELEPHONE
------OT------	OVERHEAD TELEPHONE
------UP------	UNDERGROUND POWER
------OP------	OVERHEAD POWER
------FO------	FIBER OPTIC
------UTV------	UNDERGROUND CABLE TV
------OTV------	OVERHEAD CABLE TV
------TR------	TRAFFIC
------IW------	INDUSTRIAL WASTE

——— LS ———	LAWN SPRINKLER LINE
—□———□—	WOOD FENCE
—○———○—	CHAIN LINK FENCE
—X———X—	BARBED WIRE FENCE
——— — ———	CENTERLINE
——— — — ———	PROPERTY LINE
	CONC. CURB & GUTTER
	PROPOSED APPROACH
	PROPOSED SIDEWALK
18"RCP	PROPOSED STORM SEWER & SIZE
	PROPOSED DROP INLET
	PROPOSED STORM SEWER JUNCTION BOX
1400	PROPOSED CONTOURS
	WATER
Ⓦ	WELL
#4	TEST HOLE AND NUMBER
	STREET LIGHT
	TRAFFIC SIGNAL LIGHT
	PEDESTRIAN SIGNAL LIGHT
	GUY ANCHOR
	POWER POLE
	UTILITY CLOSURE
	SIGN
	SPRINKLER HEAD
	GAS METER
	MAILBOX
	HEDGE, BRUSH, SHRUBS, WOODS
30"	DECIDUOUS TREE & SIZE
8"	CONIFEROUS TREE & SIZE

REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS
SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

LEGEND OF SYMBOLS

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SHEET NO.
A2
OF
A3

NO SCALE

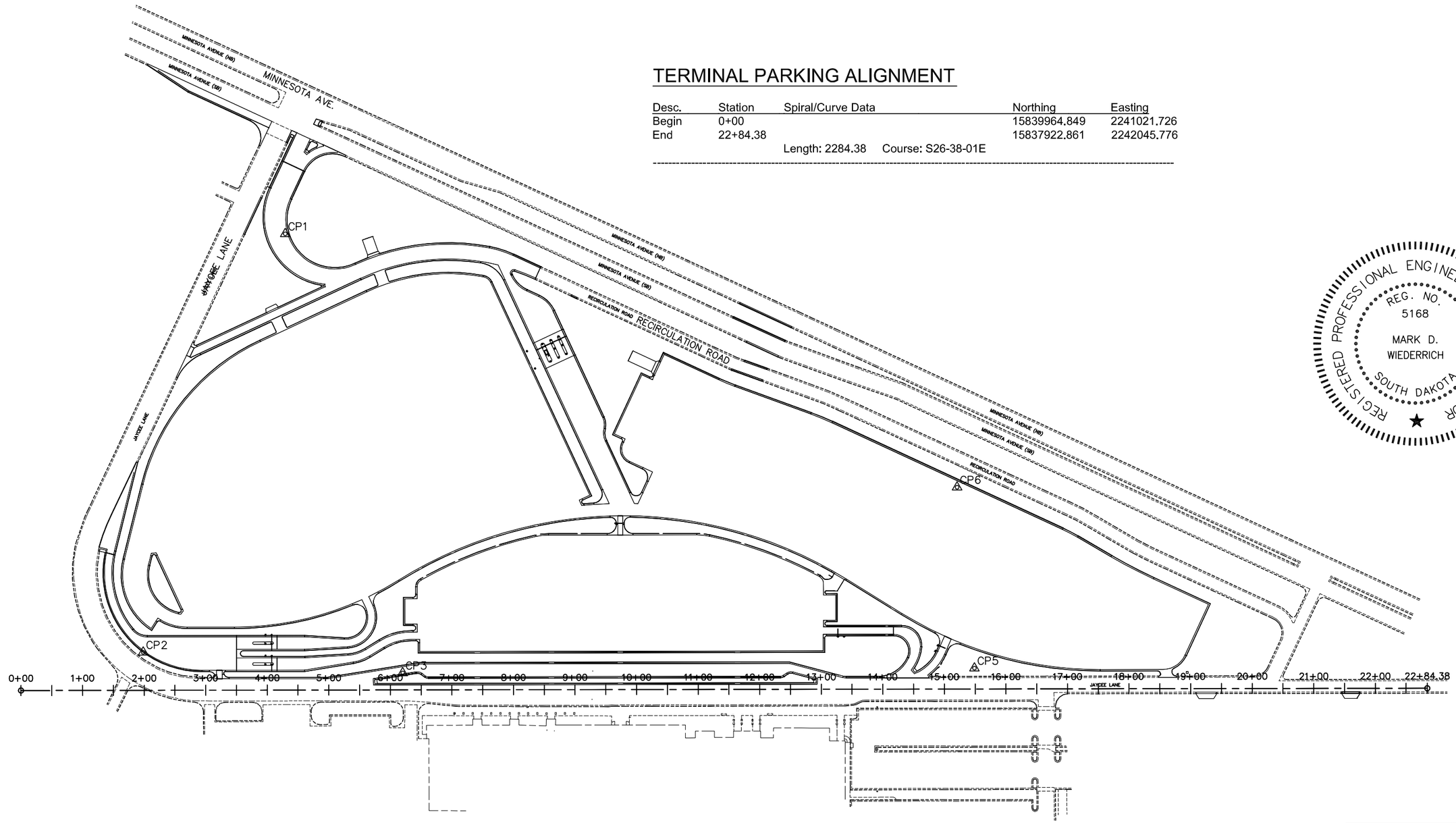
HORIZONTAL AND VERTICAL CONTROL POINTS				
POINT	DESCRIPTION	NORTHING	EASTING	ELEVATION
CP1	REBAR	15839912.233	2241876.906	1425.67
CP2	REBAR	15839814.893	2241165.905	1422.23
CP3	PK NAIL	15839422.935	2241324.337	1421.70
CP5	REBAR	15838595.563	2241746.278	1422.44
CP6	REBAR	15838751.978	2241996.411	1424.50

* Horizontal Datum is NAD83 UTM 14 NORTH

** Vertical Datum is NAVD 88

TERMINAL PARKING ALIGNMENT

Desc.	Station	Spiral/Curve Data	Northing	Easting
Begin	0+00		15839964.849	2241021.726
End	22+84.38		15837922.861	2242045.776
		Length: 2284.38 Course: S26-38-01E		



REGISTERED PROFESSIONAL ENGINEER AND LAND SURVEYOR
REG. NO. 5168
MARK D. WIEDERRICH
SOUTH DAKOTA

TERMINAL PARKING & ACCESS IMPROVEMENTS

SIOUX FALLS REGIONAL AIRPORT
SIOUX FALLS, SOUTH DAKOTA

ORIENTATION / CONTROL DATA / ALIGNMENT

DESIGNED BY: STZ/DMS
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CHECKED BY: MDW
REVISIONS:
ACAD FILE: 210710_Control Data.dwg
DATE: 3/11/2021
BY: DATE:
BY: DATE:

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SHEET NO.
A3
OF
A3