GRE JAN 2014

PROJECT ID: 1133-03-70

COUNTY: BROWN

ORDER OF SHEETS

TOTAL SHEETS = 36

STATE PROJECT	FEDERAL PROJECT	
	PROJECT	CONTRACT
1133-03-70	———	———

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PLAN OF PROPOSED IMPROVEMENT

DE PERE - SUAMICO

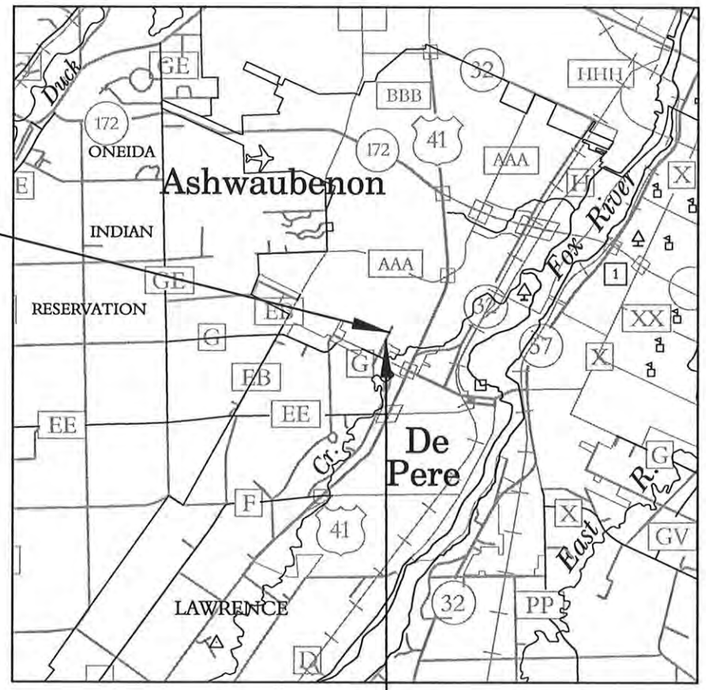
ORANGE LANE - CTH M

OFF SYSTEM

BROWN COUNTY

SALT STORAGE FACILITY

STATE PROJECT NUMBER
1133-03-70



END PROJECT 1133-03-70
STA. 17+65.90
X = 79,030.278
Y = 546,472.892

T-23-N

T-23-N

R-20-E

BEGIN PROJECT 1133-03-70
STA. 12+99.34
X = 78,732.459
Y = 546,127.068

LAYOUT
SCALE 0 1 MI.

TOTAL NET LENGTH OF CENTERLINE = 0.000 MI.

Coordinates on this plan are referenced to the Wisconsin County Coordinate System (WCCS), Brown County, Horizontal Datum NAD 83(91).

Elevations shown on this plan are referenced to vertical datum National Geodetic Vertical Datum 1929 Adjustment (NGVD 29).

DESIGN DESIGNATION

A.A.D.T. (2007)	=	N/A
A.A.D.T. (2035)	=	N/A
D.H.V. (2035)	=	N/A
D.	=	N/A
T.	=	N/A
DESIGN SPEED	=	N/A
ESALS	=	N/A

CONVENTIONAL SYMBOLS

PLAN
- CORPORATE LIMITS
- PROPERTY LINE
- LOT LINE
- LIMITED HIGHWAY EASEMENT
- EXISTING RIGHT OF WAY
- PROPOSED OR NEW R/W LINE
- SLOPE INTERCEPT
- REFERENCE LINE
- EXISTING CULVERT
- PROPOSED CULVERT (Box or Pipe)
- COMBUSTIBLE FLUIDS (CAUTION)
- MARSH AREA
- WOODED OR SHRUB AREA

PROFILE
- GRADE LINE
- ORIGINAL GROUND
- MARSH OR ROCK PROFILE (To be noted as such) (ROCK)
- SPECIAL DITCH (LABEL)
- GRADE ELEVATION (95.36)
- CULVERT (Profile View)

UTILITIES
- ELECTRIC (E)
- FIBER OPTIC (FO)
- GAS (G (size))
- SANITARY SEWER (SAN)
- STORM SEWER (SS)
- TELEPHONE (T)
- WATER (W)
- UTILITY PEDESTAL
- POWER POLE
- TELEPHONE POLE

ORIGINAL PLANS PREPARED BY:

STRAND ASSOCIATES®
910 WEST WINGRA DRIVE
MADISON, WISCONSIN 53715
(608) 251-4843

WISCONSIN
SARA J. GRIMME
E-36543
VERONA
PROFESSIONAL ENGINEER
11-5-13

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

PREPARED BY

Surveyor	WISDOT
Designer	STRAND ASSOCIATES, INC.
Project Manager	ERIC SIKORSKI
Regional Examiner	
Regional Supervisor	CHAD DEGRAVE

APPROVED FOR THE DEPARTMENT
DATE: 11-7-13 (Signature)

E

2

GENERAL NOTES

NO TREES OR SHRUBS ARE TO BE REMOVED WITHOUT APPROVAL OF THE ENGINEER.

THE LOCATIONS OF EXISTING AND PROPOSED UTILITY INSTALLATIONS AS SHOWN ON THE PLANS ARE APPROXIMATE. THERE MAY BE OTHER UTILITY INSTALLATIONS WITHIN THE PROJECT AREA THAT ARE NOT SHOWN.

EROSION CONTROL FEATURES AS SHOWN ON THE PLANS ARE SUGGESTED LOCATIONS. THE ENGINEER MAY MODIFY LOCATIONS AS NEEDED. ALL EROSION CONTROL MEASURES SHALL BE MAINTAINED UNTIL SUCH TIME AS THE ENGINEER DETERMINES THE MEASURE IS NO LONGER NECESSARY.

SILT FENCE SHALL BE PLACED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER AND IN PLACE PRIOR TO CONSTRUCTION.

DISTURBED AREAS WITHIN THE RIGHT-OF-WAY SHALL BE RESTORED AS DIRECTED BY THE ENGINEER.

BEARINGS ON THIS PLAN ARE SHOWN TO THE NEAREST SECOND.

CURVE DATA BASED ON ARC DEFINITION.

PRIOR TO ORDERING DRAINAGE PIPES AND STRUCTURES, THE CONTRACTOR SHALL VERIFY RELATED DRAINAGE INFORMATION IN THE PLAN WITH THE ENGINEER.

TEMPORARY STORAGE OF ANY EXCAVATED MATERIAL WILL NOT BE PERMITTED IN WETLANDS.

A UNIT WEIGHT OF 110 POUNDS PER SQUARE YARD PER INCH OF THICKNESS WAS USED TO ESTIMATE ASPHALT QUANTITIES.

ABBREVIATIONS

ABUT.	ABUTMENT
A.E.C.P.R.C.	APRON ENDWALL FOR CULVERT PIPE REINFORCED CONCRETE
A.D.T.	AVERAGE DAILY TRAFFIC
B.F.	BACK FACE
B.M.	BENCH MARK
B.O.C.	BACK OF CURB
C.P.R.C.	CULVERT PIPE REINFORCED CONCRETE
CTR.	CENTER
C.L.	CENTERLINE
D.	LANE DISTRIBUTION
D.H.V.	DESIGN HOURLY VOLUME
DIA.	DIAMETER
DIM.	DIMENSION
EL. OR ELEV.	ELEVATION
EXC.	EXCAVATION
EXIST.	EXISTING
F.E.	FIELD ENTRANCE
F.F.	FRONT FACE
LT.	LEFT
MAX.	MAXIMUM
MIN.	MINIMUM
M/L	MATCH LINE
NORM.	NORMAL
O.H.	OVERHEAD POWER LINE
P.L.	PROPERTY LINE
P.O.L.	POINT ON LINE
REQ'D.	REQUIRED
RDWY.	ROADWAY
R.H.F.	RIGHT HAND FORWARD
R/L	REFERENCE LINE
RT.	RIGHT
R/W	RIGHT OF WAY
S.E.	SUPERELEVATION
SPA.	SPACE
STA.	STATION
SYM.	SYMMETRICAL
T.	PERCENT TRUCKS
TYP.	TYPICAL
V.	DESIGN SPEED

UTILITIES

UTILITY OR MUNICIPALITY	ADDRESS	CONTACT	UTILITY TYPE
WISCONSIN PUBLIC SERVICE	2850 SOUTH ASHLAND AVENUE PO BOX 19001 GREEN BAY, WI 54307 PH: (920) 617-5167 PH: (920) 655-1596 MOBILE EMAIL: RDSTEIER@WISCONSINPUBLICSERVICE.COM	RANDY STEIER	ELECTRIC - DISTRIBUTION
WISCONSIN PUBLIC SERVICE	2850 SOUTH ASHLAND AVENUE PO BOX 19001 GREEN BAY, WI 54307 PH: (920) 617-5092 PH: (920) 660-8448 MOBILE EMAIL: PGMAUERMANN@WISCONSINPUBLICSERVICE.COM	PHIL MAUERMANN	GAS - DISTRIBUTION
ASHWAUBENON WATER AND SEWER UTILITY	2155 HOLMGREN WAY GREEN BAY, WI 54304-4605 PH: (920) 492-2335 PH: (920) 492-2335 MOBILE EMAIL: DMARTIN@ASHWAUBENON.COM	DOUG MARTIN	SANITARY SEWER & WATER

DIGGERS HOTLINE

Call 811 3 Work Days Before You Dig
or Toll Free (800) 242-8511
Hearing Impaired TTY (800) 542-2289
www.DiggersHotline.com

DESIGN CONTACT

SARA GRIMME
STRAND ASSOCIATES
910 W. WINGRA DRIVE
MADISON, WI 53715
PH: (608) 251-4843
SARA.GRIMME@STRAND.COM

WISDNR CONTACT

JAMES DOPERALSKI
WISCONSIN DEPARTMENT OF NATURAL RESOURCES
2984 SHAWANO AVENUE
GREEN BAY, WI 54313-6762
PH: (920) 662-5119
JAMES.DOPERALSKI@WISCONSIN.GOV

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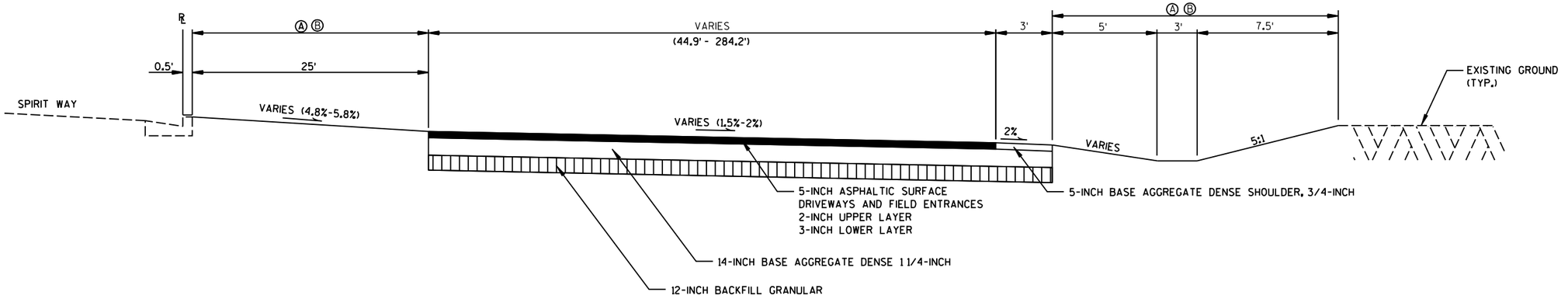


PROPOSED TYPICAL SECTION

Ⓐ FERTILIZER TYPE B; SEEDING
MIXTURE NO. 30; SEEDING TEMPORARY

Ⓑ SALVAGED TOPSOIL; MULCHING;

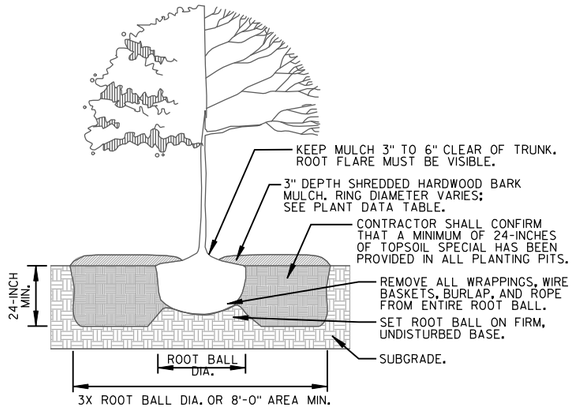
NOTE: PROPOSED TYPICAL SECTION TO BE
USED AS FLOOR OF SALT SHED BUILDING.

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	TYPICAL SECTIONS	SHEET 3	E

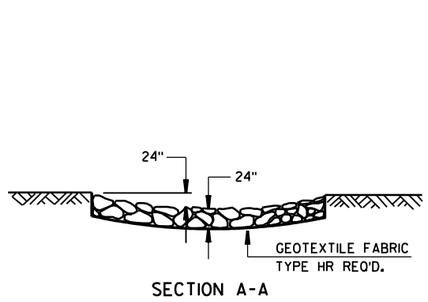
	HYDROLOGIC SOIL GROUP											
	A			B			C			D		
	SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)			SLOPE RANGE (PERCENT)		
LAND USE:	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER	0-2	2-6	6 & OVER
ROW CROPS	.08 .22	.16 .30	.22 .38	.12 .26	.20 .34	.27 .44	.15 .30	.24 .37	.33 .50	.19 .34	.28 .41	.38 .56
MEDIAN STRIP-TURF	.19 .24	.20 .26	.24 .30	.19 .25	.22 .28	.26 .33	.20 .26	.23 .30	.30 .37	.20 .27	.25 .32	.30 .40
SIDE SLOPE-TURF			.25 .32			.27 .34			.28 .36			.30 .38
PAVEMENT:												
ASPHALT	.70 - .95											
CONCRETE	.80 - .95											
BRICK	.70 - .80											
DRIVES, WALKS	.75 - .85											
ROOFS	.75 - .95											
GRAVEL ROADS, SHOULDERS	.40 - .60											

TOTAL PROJECT AREA = 8.88 ACRES
TOTAL AREA EXPECTED TO BE DISTURBED BY CONSTRUCTION ACTIVITIES = 2.65 ACRES

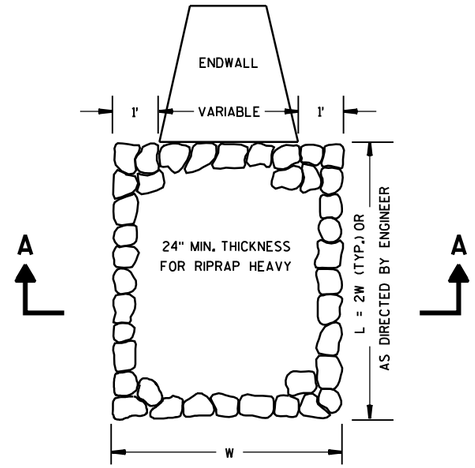
RUNOFF COEFFICIENT TABLE



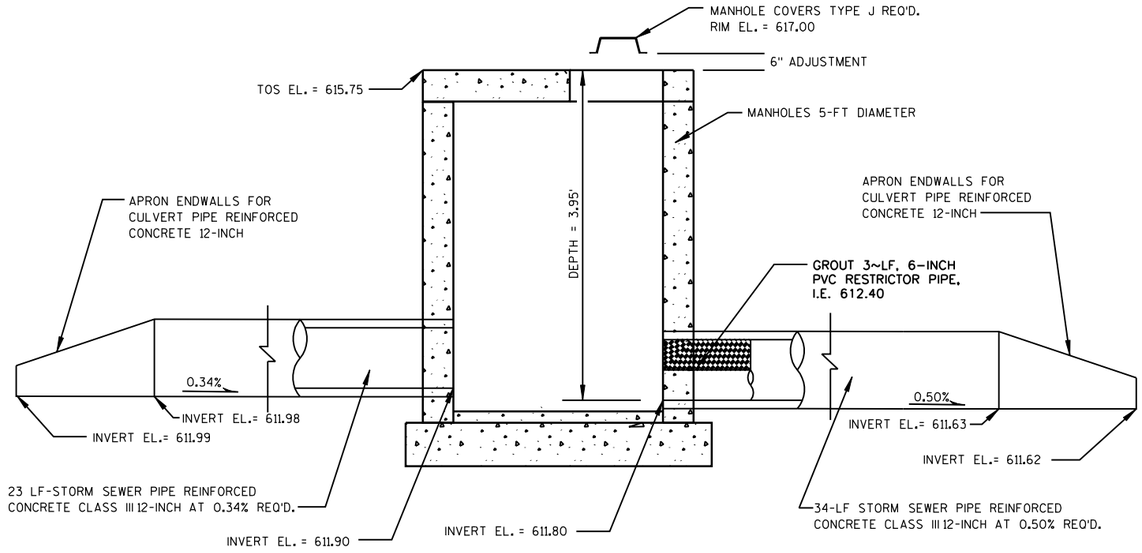
NON-BED TREE PLANTING DETAIL



SECTION A-A

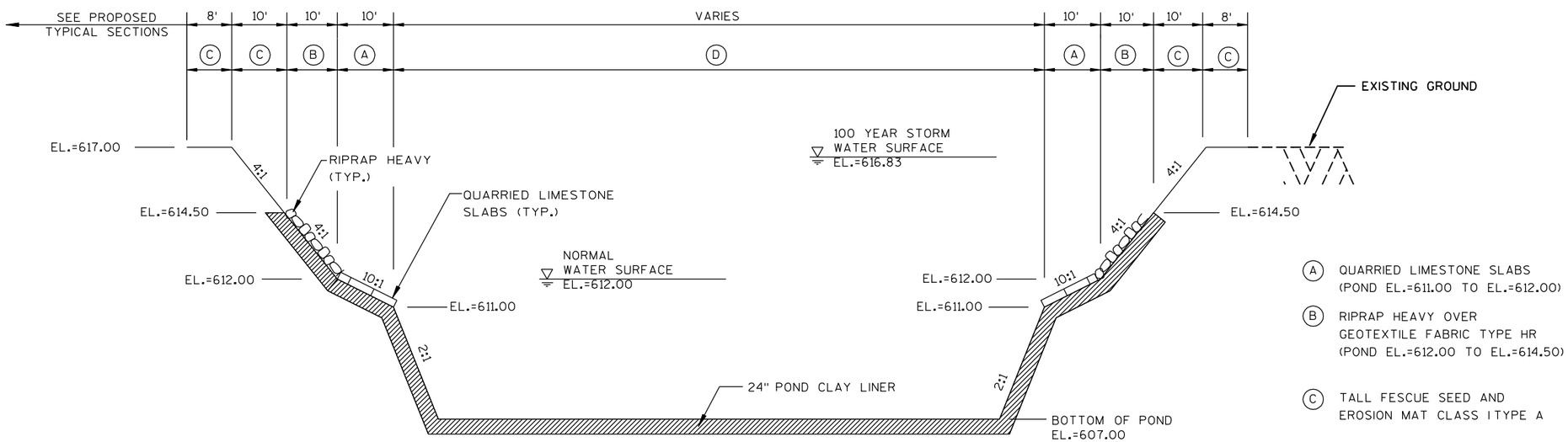


RIPRAP HEAVY TREATMENT AT CULVERTS



DETENTION BASIN - CULVERT PIPE ELEVATION DETAIL

STA. 17+32.29 RT.



(A) QUARRIED LIMESTONE SLABS (POND EL.=611.00 TO EL.=612.00)

(B) RIPRAP HEAVY OVER GEOTEXTILE FABRIC TYPE HR (POND EL.=612.00 TO EL.=614.50)

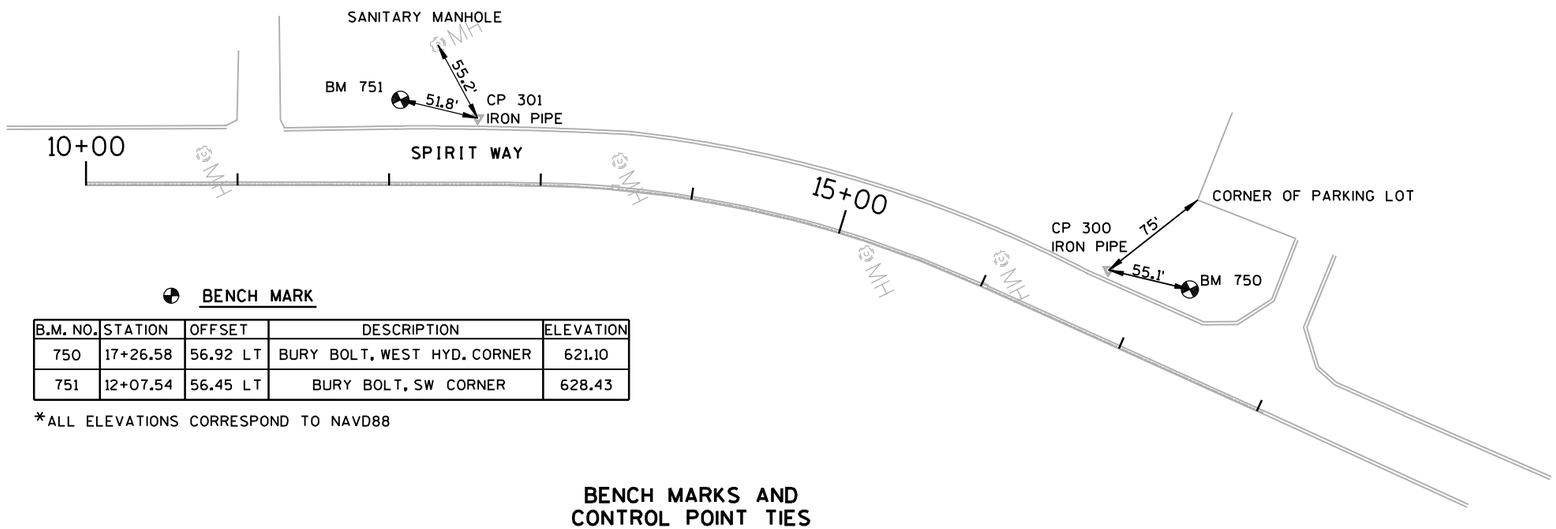
(C) TALL FESCUE SEED AND EROSION MAT CLASS ITYPE A

(D) SEEDING MIXTURE NO. 30 AND EROSION MAT CLASS ITYPE A

DETENTION BASIN DETAIL

CP 301
X=78,652.316
Y=546,122.613
STA. 12+58.59, 44.36' LT

CP 300
X=78,929.639
Y=546,448.833
STA. 16+72.43, 44.39' LT

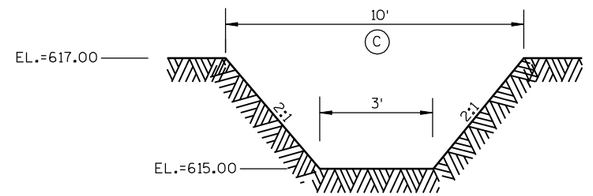


BENCH MARK

B.M. NO.	STATION	OFFSET	DESCRIPTION	ELEVATION
750	17+26.58	56.92 LT	BURY BOLT, WEST HYD. CORNER	621.10
751	12+07.54	56.45 LT	BURY BOLT, SW CORNER	628.43

*ALL ELEVATIONS CORRESPOND TO NAVD88

BENCH MARKS AND CONTROL POINT TIES

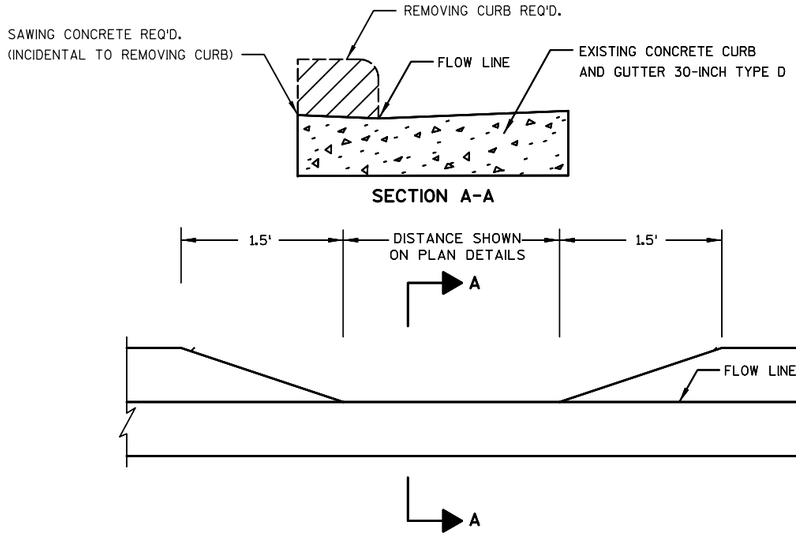


(C) TALL FESCUE SEED AND EROSION MAT CLASS ITYPE A

DETENTION BASIN WEIR OVERFLOW DETAIL

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 5	E

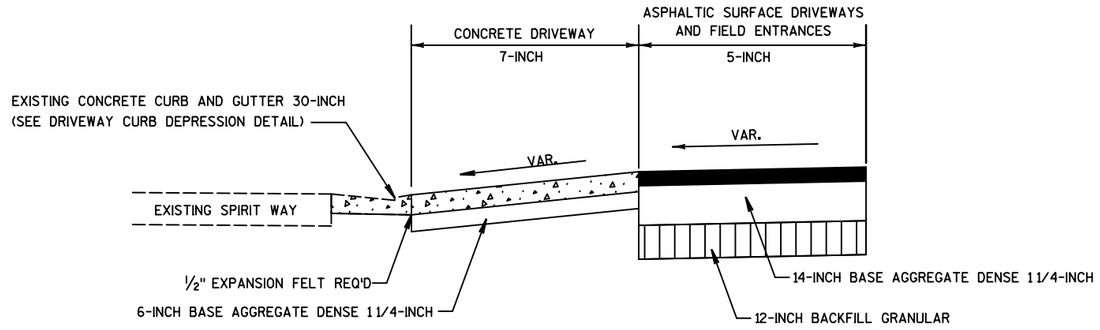
2



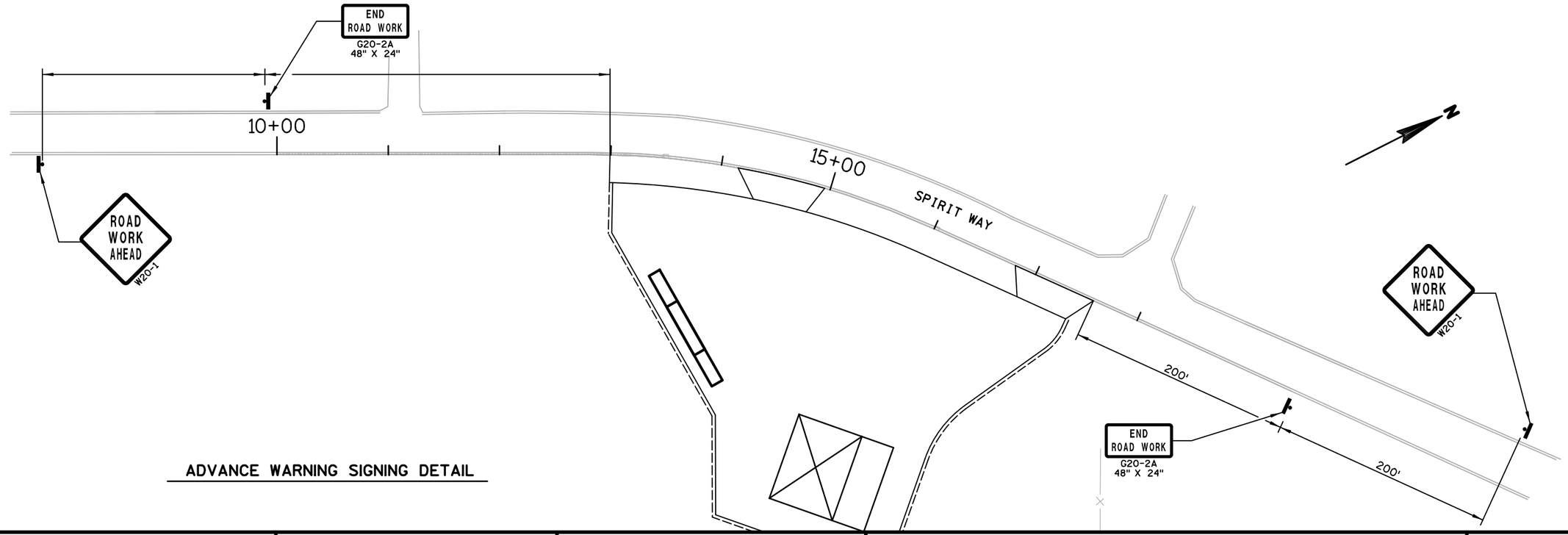
DRIVEWAY CURB HEAD DEPRESSION DETAIL

STA. 14+5 - STA. 14+85
STA. 16+80 - STA. 17+57

PAID FOR AS REMOVING CURB



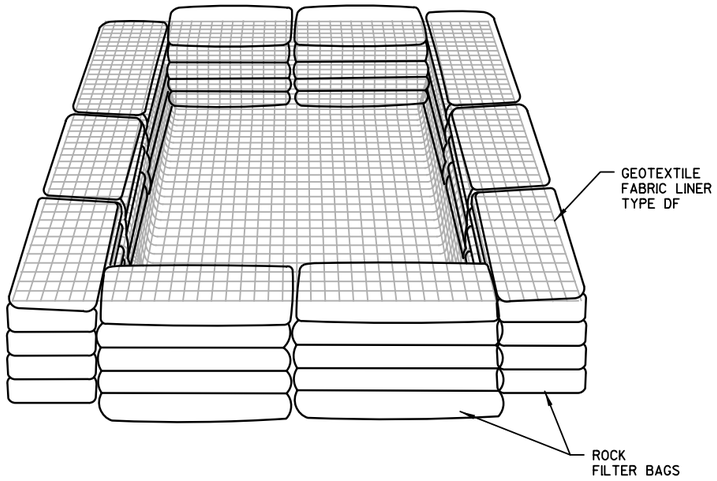
DRIVEWAY ENTRANCE DETAIL



ADVANCE WARNING SIGNING DETAIL

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\021003_cd.dgn PLOT DATE : 11/5/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

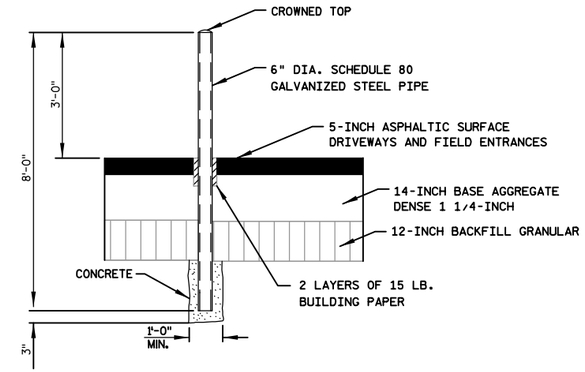


NOTES:

DETAIL IS AN EXAMPLE DEVICE WHICH MEETS WDNR DEWATERING PRACTICES WHEN PROPERLY SIZED.

ALL MATERIALS AND CONSTRUCTION ARE INCIDENTAL TO SEDIMENTATION BASIN ITEM.

SEDIMENTATION BASIN



PIPE BOLLARD DETAIL

INCLUDED WITH BID ITEM
'SALT STORAGE FACILITY'

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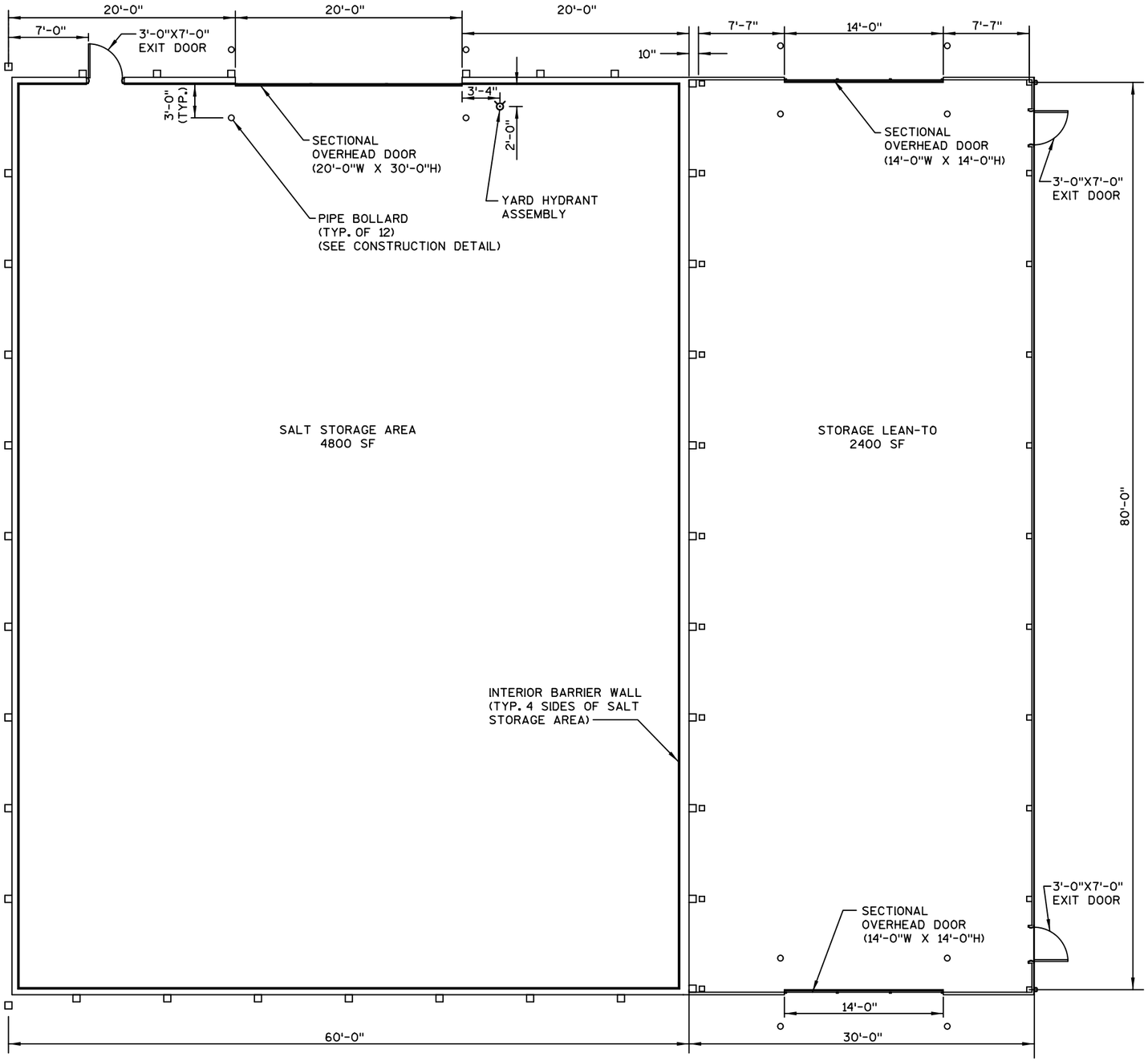
PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	CONSTRUCTION DETAILS	SHEET 7	E



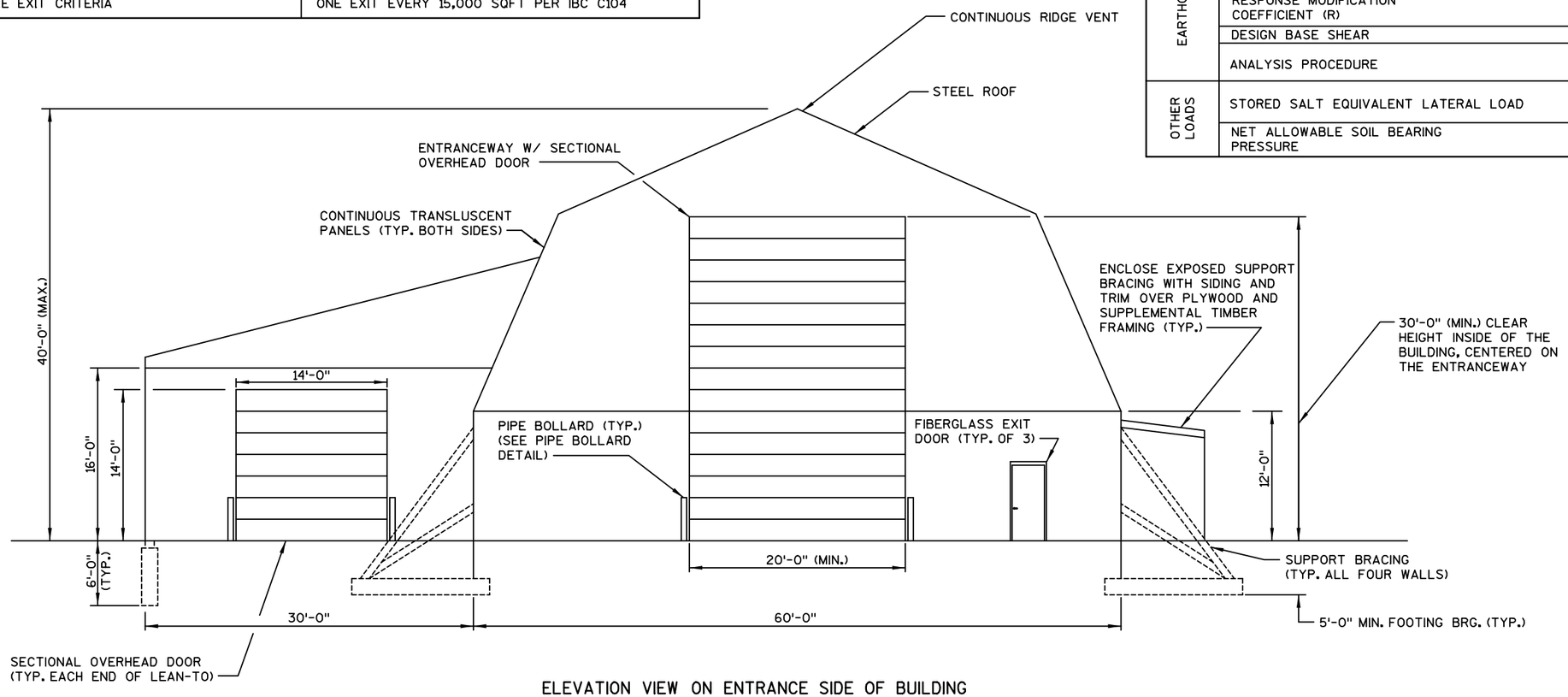
OVERALL FLOOR PLAN

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	BUILDING DETAIL	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\021005_cd.dgn PLOT DATE : 7/30/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

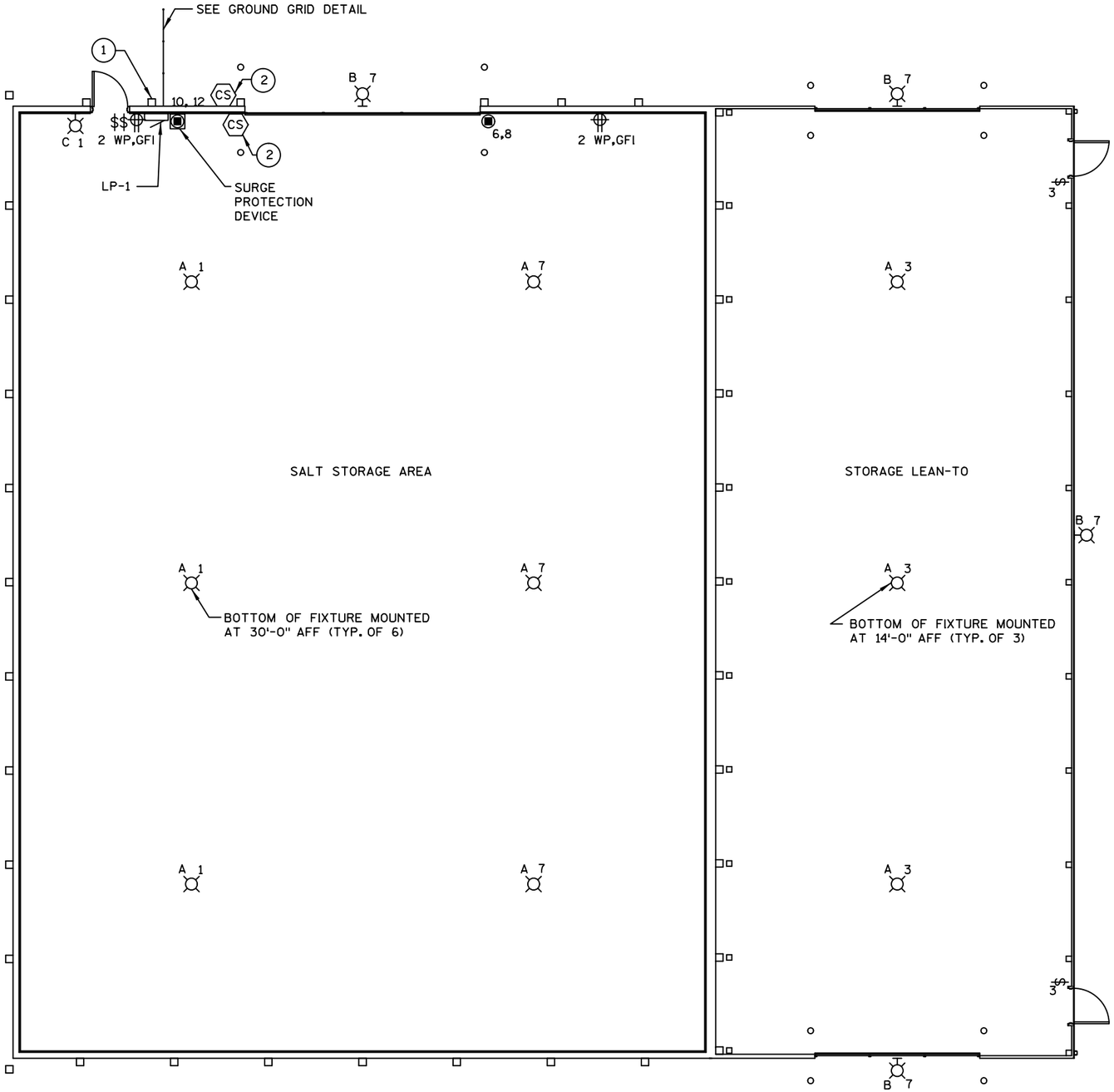
BUILDING CODE INFORMATION		
BUILDING CODE	2009 INTERNATIONAL BUILDING CODE AS AMENDED	
OCCUPANCY TYPE	U- UTILITY (BARN PER APP. C OF IBC)	
CONSTRUCTION TYPE	TYPE VB	
	ALLOWABLE	**ACTUAL**
NO. OF STORIES	1 STORY	1 STORY
ALLOWABLE HEIGHT	40 FEET	40 FEET
PUBLIC WAYS OR YARDS	ACCESSIBLE FROM 4 SIDES, MIN. 30-FOOT ACCESS WIDTH	
FOOTPRINT AREA	7,200 S.F.	
TABULATED ALLOWABLE AREA	5,500 S.F.	
FRONTAGE INCREASE	4,125 S.F.	
TOTAL ALLOWABLE AREA	9,625 S.F.	
BUILDING VOLUME	GREATER THAN 50,000 C.F.	
EXIT ACCESS TRAVEL DISTANCE PERMITTED	300 FEET	
ACTUAL MAXIMUM EXIT DISTANCE	130 FEET	
SINGLE EXIT CRITERIA	ONE EXIT EVERY 15,000 SQFT PER IBC C104	

STRUCTURAL DESIGN CRITERIA			
DESIGN CODES	BUILDING CODE		IBC 2009
	CONCRETE DESIGN CODE		ACI 318-08
	OCCUPANCY CATEGORY		II
ROOF SNOW LOAD	GROUND SNOW LOAD (Pg) (PSF)		40
	SNOW EXPOSURE FACTOR (Ce)		1.0
	SNOW LOAD IMPORTANCE FACTOR (Is)		1.0
	THERMAL FACTOR (Ct) -		1.2
	DRIFT LOADS		PER IBC CODE
WIND LOAD	BASIC 3-SECOND GUST WIND SPEED (MPH)		90
	WIND IMPORTANCE FACTOR (Iw)		1.0
	WIND EXPOSURE		C
	COMPONENTS AND CLADDING DESIGN WIND PRESSURE (PSF)		PER IBC CODE
EARTHQUAKE DESIGN DATA	SEISMIC IMPORTANCE FACTOR (IE)		1.0
	SITE CLASS		D
	SPECTRAL RESPONSE COEFFICIENTS	SDS	0.056
		SD1	0.054
	SEISMIC DESIGN CATEGORY		A
	BASIC SEISMIC FORCE RESISTING SYSTEM		LIGHT FRAMED WALLS WITH SHEAR PANELS OF OTHER MATERIALS
	RESPONSE MODIFICATION COEFFICIENT (R)		2.5
	DESIGN BASE SHEAR		0.01 W
	ANALYSIS PROCEDURE		SIMPLIFIED
OTHER LOADS	STORED SALT EQUIVALENT LATERAL LOAD		72 PCF
	NET ALLOWABLE SOIL BEARING PRESSURE		1500 PSF



ELEVATION VIEW ON ENTRANCE SIDE OF BUILDING

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	BUILDING DETAIL	SHEET 9	E



OVERALL FLOOR PLAN

GENERAL NOTES:

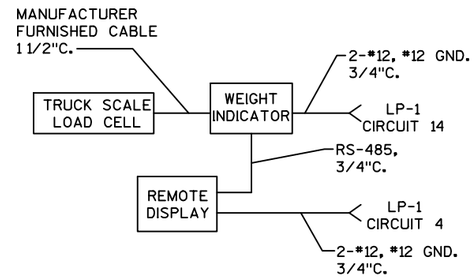
1. THE UTILITY COMPANY IS WISCONSIN PUBLIC SERVICE CORPORATION. THE SECONDARY SERVICE SHALL BE 120/240V. 3-WIRE, SINGLE PHASE.

2.COORDINATE THE NEW ELECTRICAL SERVICE WITH THE UTILITY AND ALL UTILITY COSTS SHALL BE INCLUDED WITH BID ITEM "SALT STORAGE FACILITY".

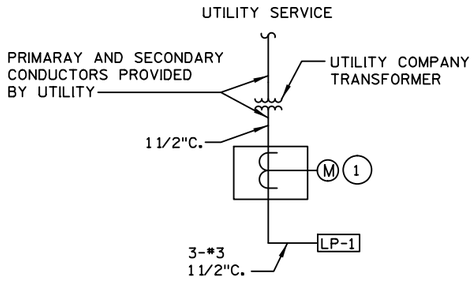
KEY NOTES:

(1) METER SOCKET PROVIDED BY ELECTRICAL CONTRACTOR, METER PROVIDED BY UTILITY COMPANY.

(2) OVERHEAD GARAGE DOOR CONTROLS FURNISHED AS SPECIFIED AND INSATLLED BY THIS CONTRACTOR. MOTOR DISCONNECT SHALL BE MOUNTED ADJACENT TO OPERATOR.



SCALE RISER DIAGRAM
NO SCALE



ONE-LINE DIAGRAM
NO SCALE

2

ELECTRICAL SYMBOLS

LIGHTING

- FIXTURE SYMBOL (TYPICAL) A-INDICATES FIXTURE TYPE 2-INDICATES CIRCUIT NUMBER b-INDICATES SWITCHING SOLID CIRCLE INDICATES ALWAYS ON
- INCANDESCENT, HID, SURFACE OR PENDANT
- INCANDESCENT, HID, WALL
- 1X4 FLUORESCENT, SURFACE OR PENDANT
- 1X8 FLUORESCENT, SURFACE OR PENDANT
- FLUORESCENT, WALL
- 1X4 FLUORESCENT, RECESSED
- 2X2 FLUORESCENT, RECESSED
- 2X4 FLUORESCENT, RECESSED
- CAN, FLUORESCENT OR HID
- EXIT, SURFACE, PENDANT OR RECESSED
- EXIT, WALL
- EMERGENCY LIGHTING

SWITCHES

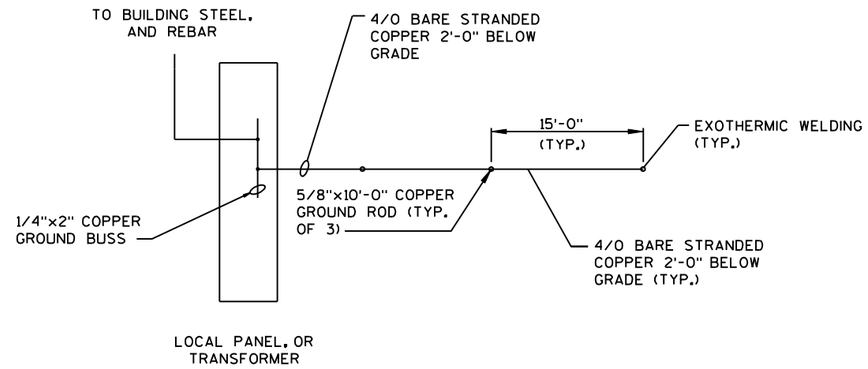
- $ SINGLE POLE
- $2 TWO POLE
- $3 THREE WAY
- $4 FOUR WAY
- $K KEYED
- $D DIMMER
- $M MANUAL MOTOR SWITCH (3 PHASE)
- $WP WEATHER PROOF
- $P SWITCH WITH PILOT LIGHT
- LC LIGHTING CONTROL STATION
- R3 LOCKOUT STOP SWITCH
- DP DOOR POSITION SWITCH
- PC PHOTOCELL
- CS CONTROL STATION

POWER SYMBOLS

- E — UNDERGROUND ELECTRIC
- OH — OVERHEAD ELECTRIC
- 2(X) — CIRCUIT NUMBER (TYPICAL); OTHERWISE SHOWN PANEL DESIGNATION (TYP.)
- DUPLEX, 125 VOLT, WP INDICATES WEATHERPROOF
- DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT, ABOVE FURNITURE
- DOUBLE DUPLEX, 125 VOLT
- EWC — SINGLE CONVENIENCE, 125 VOLT FOR ELECTRIC WATER COOLER
- EXPLOSION-PROOF, ABOVE FURNITURE
- EXPLOSION-PROOF
- FIXED EQUIPMENT CONNECTION
- POWER OUTLET, VOLTAGE & AMPERAGE AS INDICATED
- AUTOMATIC TRANSFER SWITCH (ONE-LINE DIAGRAM)
- CIRCUIT BREAKER (ONE-LINE DIAGRAM)
- METER (ONE-LINE DIAGRAM)
- PANELBOARD

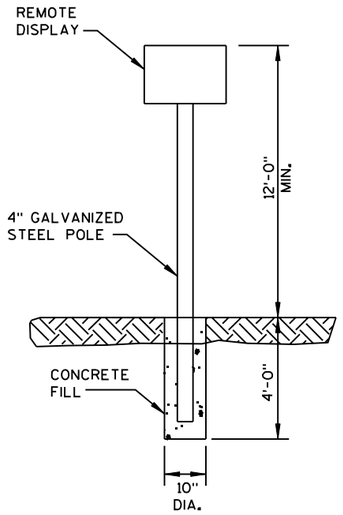
EQUIPMENT AND WIRING

- GROUND ROD 10'-5/8" DIA. COPPER CLAD
- TRANSFORMER
- F — DISCONNECT, F=FUSED, B=CIRCUIT BREAKER, BLANK=NON-FUSED
- MOTOR STARTER MAGNETIC
- CIRCUIT BREAKER COMBINATION STARTER
- J — JUNCTION BOX
- T — LINE VOLTAGE THERMOSTAT
- T — LINE VOLTAGE THERMOSTAT W/REMOTE BULB
- P-01-01 — 480V LOAD, REFER TO MCC SCHEDULE FOR EQUIPMENT NUMBER
- VFD — VARIABLE FREQUENCY DRIVE



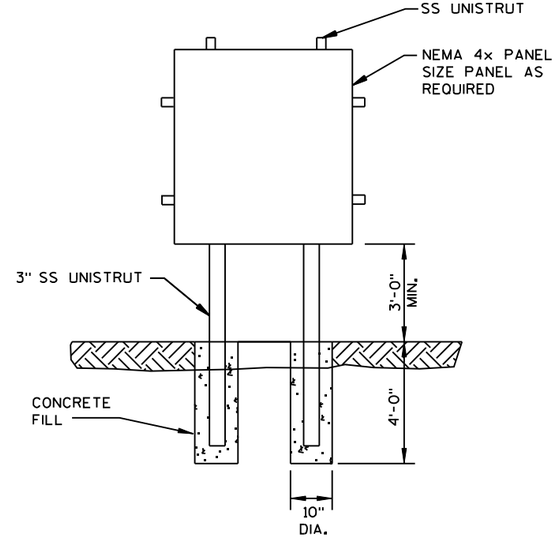
GROUND GRID DETAIL

NO SCALE



REMOTE DISPLAY MOUNTING DETAIL

NO SCALE



WEIGHT INDICATOR MOUNTING DETAIL

NO SCALE

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	BUILDING DETAIL - ELECTRICAL	SHEET 11	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\021008_cd.dgn PLOT DATE : 4/11/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

2

LIGHTING PANEL LP-1

SERVICE: 120/240V, 1Φ, 3W — ENCLOSURE: NEMA 3R — MOUNTING: SURFACE
MAIN BREAKER: 100A M.C.B. — MAIN BUS: COPPER
LOCATION: SALT STORAGE ROOM — SCIC: 14 kAIC

ROOM NUMBER/DESCRIPTION	AMPS	POLES	CCT. #	PHASE A	PHASE B	PHASE C	PHASE A	PHASE B	PHASE C	CCT. #	POLES	AMPS	ROOM NUMBER/DESCRIPTION
SALT STORAGE AREA LIGHTING	20	1	1	1350			360			2	1	20	SALT STORAGE ROOM RECEPTACLES
SALT STORAGE LEAN-TO LIGHTING	20	1	3		1300			500		4	1	20	REMOTE SCALE DISPLAY
SALT STORAGE AREA LIGHTING	20	1	5			1200			960	6	2	20	OVERHEAD DOOR
EXTERIOR LIGHTING	20	1	7	400			960			8			
	20	1	9		0			0		10	2	20	SPD
	20	1	11			0			0	12			
	20	1	13	0			180			14	1	20	WEIGHT INDICATOR
	20	1	15		0			0		16	1	20	
	20	1	17			0			0	18	1	20	
	20	1	19	0			0			20	1	20	
	20	1	21		0			0		22	1	20	
	20	1	23			0			0	24	1	20	
	20	1	25	0			0			26	1	20	
	20	1	27		0			0		28	1	20	
	20	1	29			0			0	30	1	20	
TOTAL LOAD PER PHASE PER SIDE (VA)				1750	1300	1200	1500	500	960				

TOTAL LOAD PHASE A (VA)	3250	VA	TOTAL CONNECTED LOAD (A)	34	A
TOTAL LOAD PHASE B (VA)	1800	VA	TOTAL CONNECTED LOAD + 25%	42	A
TOTAL LOAD PHASE C (VA)	2160	VA	SPARE 25%	11	A
TOTAL CONNECTED LOAD (VA)	7210	VA	FEEDER LOAD	53	A

2

BEGIN PROJECT
STA. 12+99.34
X=78,732.459
Y=546,127.068

END PROJECT
STA. 17+65.90

REMOVING CURB REO'D.
(SEE DETAIL FOR DRIVEWAY
CURB HEAD DEPRESSION)

REMOVING CURB REO'D.
(SEE DETAIL FOR DRIVEWAY
CURB HEAD DEPRESSION)

ASHWAUBENON WATER
AND SANITARY

SPIRIT WAY

P.I.

R/W

11+00

12+00

13+00

14+00

15+00

16+00

17+00

18+00

CONCRETE DRIVEWAY
7-INCH

CONCRETE DRIVEWAY
7-INCH

25'

R 730.1'

R 730.1'

1.8%

5-INCH ASPHALTIC SURFACE
DRIVEWAYS AND FIELD ENTRANCES

WPS (ELECTRIC)

WATER COPPER 2-INCH

R 50'

3' (TYP.)

DETENTION BASIN
(SEE DETENTION
BASIN DETAIL)

R 100'

1 REMOTE DISPLAY
(SEE REMOTE DISPLAY
MOUNTING DETAIL)

CIRCUIT
4

TRUCK SCALE 1

1 WEIGHT INDICATOR
(SEE WEIGHT INDICATOR
MOUNTING DETAIL)

CIRCUIT
14

YARD HYDRANT
ASSEMBLY

2.3%

2.5%

SALT SHED
BUILDING

STORAGE LEAN-TO

80'

3.2%

60'

30'

4.2%

P.I.

P.L.

P.L.

P.L.

WETLAND BOUNDARY

WETLAND BOUNDARY

SEE DETAIL FOR
DETENTION BASIN - CULVERT
PIPE ELEVATION DETAIL

STA. 16+01.4, 200.23' RT
YARD HYDRANT ASSEMBLY REQ'D

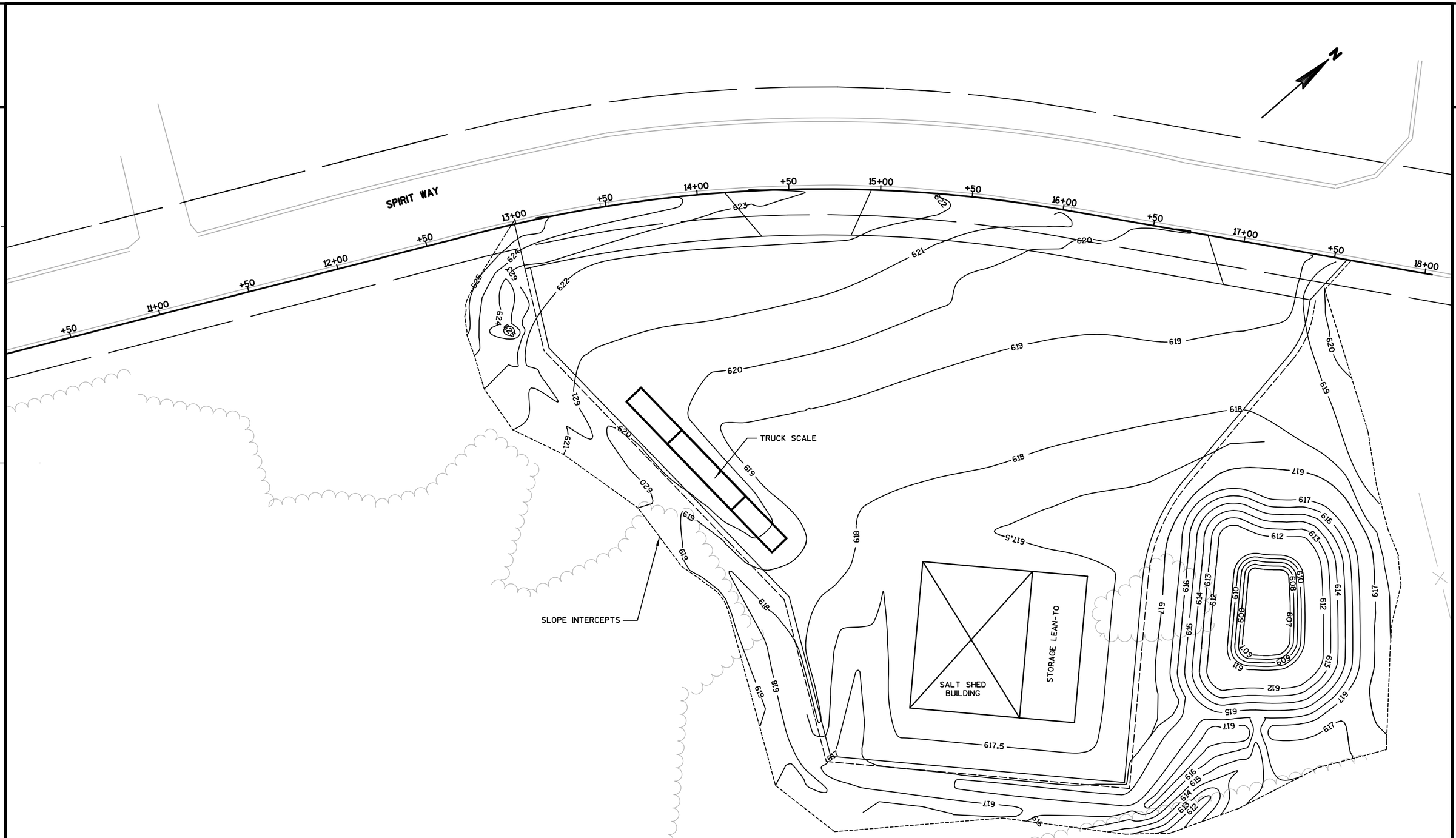
1 REFER TO "SCALE RISER DIAGRAM" FOR CONDUIT AND WIRE REQUIREMENTS ASSOCIATED WITH TRUCK SCALE EQUIPMENT.

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	PLAN DETAIL	SHEET 13	E

PT	STATION	OFFSET	LT/RT	NORTHING	EASTING	ELEV	RADIUS
11	14+15.00	0	RT	546236.1948	78772.7614	623.56	
12	14+34.13	25	RT	546235.7685	78804.0496	622.23	
13	43+00.34	755.11	RT	545781.4364	79375.5725	0.00	730.1
14	13+02.44	25	RT	546129.7073	78733.8845	622.95	
15	13+02.84	69.9	RT	546108.6013	78773.5186	621.69	
16	14+42.23	221.65	RT	546117.8542	78961.5675	618.35	
17	14+75.12	308.77	RT	546077.7276	79041.7643	616.98	
18	16+86.90	301.31	RT	546188.6705	79157.7460	617.09	
19	16+77.52	191.53	RT	546268.2918	79081.5838	617.10	
20	17+77.16	183.02	RT	546337.4153	79153.8468	612.35	100
21	16+90.66	132.84	RT	546322.2404	79055.0049	617.45	
22	17+34.16	57.87	RT	546407.9095	79041.8523	618.50	
23	16+90.91	32.78	RT	546400.3220	78992.4314	619.50	
24	17+40.90	25.02	RT	546437.7280	79026.4988	619.52	
25	17+57.00	0	RT	546467.3087	79023.3461	618.56	
26	16+93.00	25	RT	546407.6946	78989.1825	618.90	
27	16+80.00	0	LT	546419.0110	78963.3767	619.53	
28	15+99.36	25	RT	546348.9973	78916.3005	619.84	
29	14+84.45	25	RT	546272.8139	78835.5685	621.69	
30	14+95.03	0	RT	546297.4148	78824.2534	622.45	
38	15+42.35	200.24	RT	546185.2115	78994.9945	617.89	
39	16+47.65	194.26	RT	546247.4227	79060.0312	617.89	
40	16+54.46	273.97	RT	546189.6123	79115.3300	617.89	
41	15+43.29	280.24	RT	546127.4011	79050.2933	617.89	
42	13+53.76	100.49	RT	546132.0498	78822.7630	620.55	

PT	STATION	OFFSET	OFFSET	LT/RT	NORTHING	EASTING	ELEV	RADIUS
43	14+41.74	189.81	189.81	RT	546137.6523	78936.6252	619.55	
44	14+14.37	65.59	65.59	RT	546136.0797	78904.6639	620.83	
45	14+06.28	57.87	57.87	RT	546135.5883	78894.6760	619.25	
46	13+83.22	34.33	34.33	RT	546134.1139	78864.7122	619.25	
47	13+75.92	26.36	26.36	RT	546133.6224	78854.7243	620.83	
48	13+72.48	40.95	40.95	RT	546123.1272	78865.2528	619.25	
49	13+95.37	64.76	64.76	RT	546124.6015	78895.2166	619.25	
100	17+00.91	143.12	143.12	RT	546320.6647	79069.4346	617.00	
101	17+13.26	251.47	251.47	RT	546244.0217	79147.0161	616.00	
102	17+49.34	262.8	262.8	RT	546257.8238	79182.2188	617.00	
103	17+59.23	261.18	261.18	RT	546265.2922	79188.9091	617.00	
104	17+92.94	239.72	239.72	RT	546303.1515	79201.6983	617.00	
105	17+76.75	139.82	139.82	RT	546370.8023	79126.4236	617.00	
106	17+61.54	153.39	153.39	RT	546350.6954	79123.0934	612.00	
107	17+16.64	155.51	155.51	RT	546320.8769	79089.4543	612.00	
108	17+24.24	239.64	239.64	RT	546260.1227	79148.1409	611.99	
109	17+77.35	227.07	227.07	RT	546303.2286	79181.6194	612.00	
110	17+65.56	221.98	221.98	RT	546299.7968	79169.2508	611.00	
111	17+56.99	165.87	165.87	RT	546338.1161	79127.3816	611.00	
112	17+28.84	169.74	169.74	RT	546317.4536	79107.8837	611.00	
113	17+32.26	225.67	225.67	RT	546276.0360	79145.6280	611.00	
114	17+38.73	219.65	219.65	RT	546284.7847	79146.8897	607.00	
115	17+60.94	214.83	214.83	RT	546302.4641	79161.1663	607.00	
116	17+54.52	173.8	173.8	RT	546330.3932	79130.4354	607.00	
117	17+34.77	175.12	175.12	RT	546316.9789	79115.8696	607.00	

2



PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	CONTOUR MAP	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\021601_cm.dgn PLOT DATE : 7/25/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

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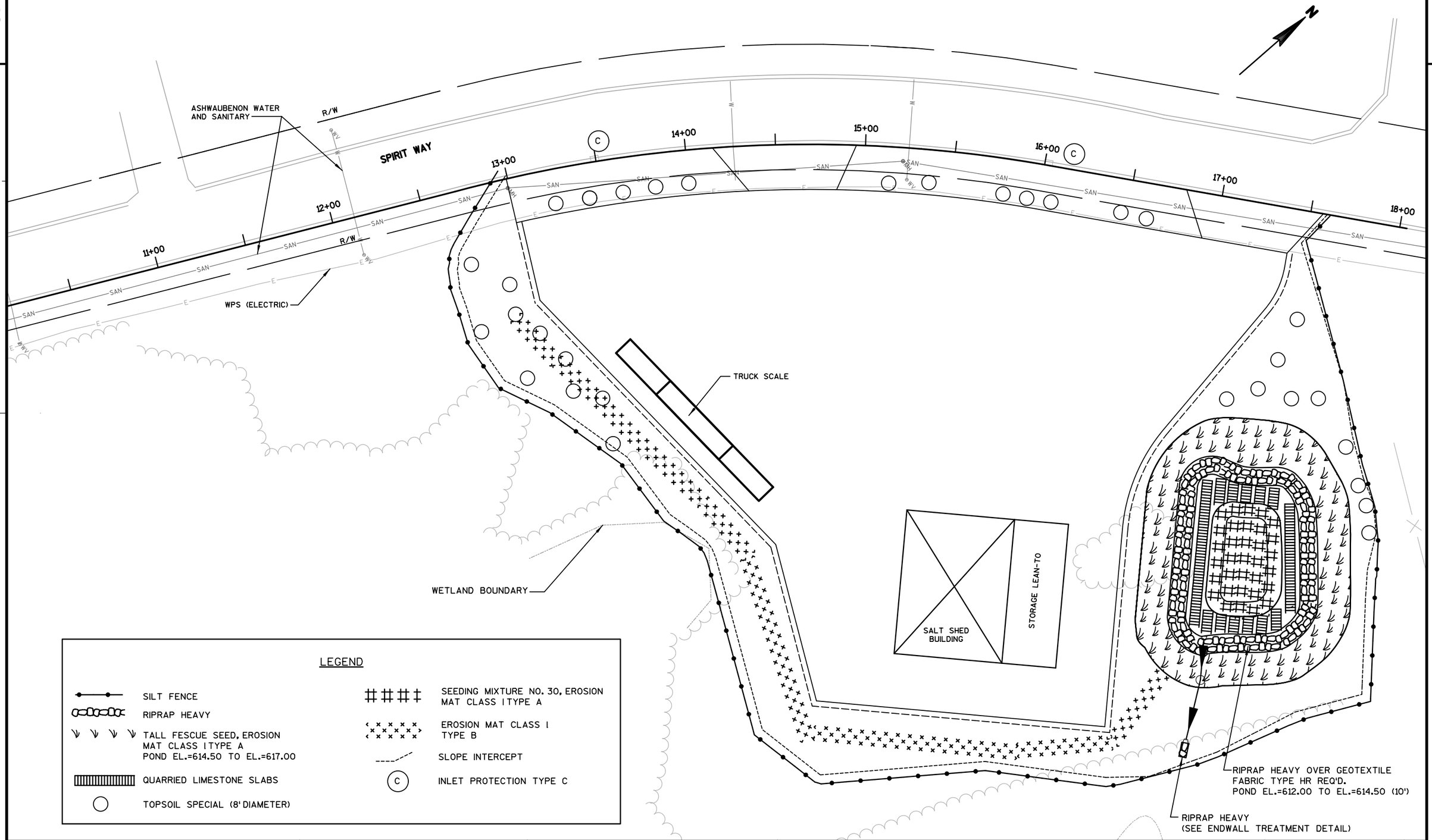


PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	EROSION CONTROL DETAIL	SHEET	E

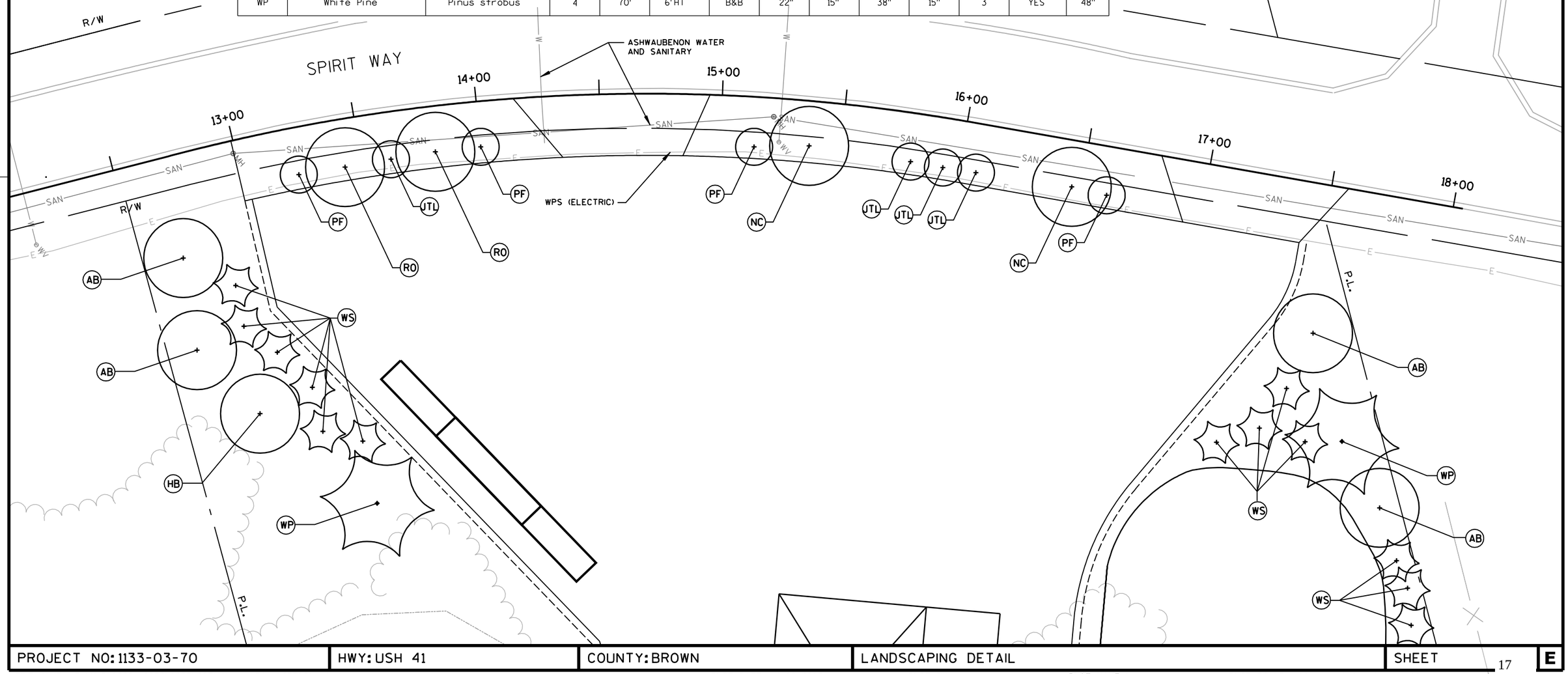
FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\022001_ec.dgn PLOT DATE : 7/25/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

PLANT DATA CHART

SYM	COMMON NAME	SCIENTIFIC NAME	TYPE	AVERAGE MATURE HEIGHT	SIZE (CAL OR HT.) WHEN PLANTED	ROOT ZONE MODE	MINIMUM SIZE BALL/POT DIAM	MINIMUM SIZE BALL/POT DEPTH	MINIMUM SIZE PLANT HOLE DIAM.	MINIMUM SIZE PLANT HOLE DEPTH	FERT. UNITS REQ'D	RODENT PROTECTION NEEDED	MULCH RING DIAM.
	DECIDIOUS TREES												
AB	Autumn Blaze Maple	Acer rubrum 'Autumn Blaze'	1	50'	2" Cal.	B&B	24"	16"	40"	16"	4	YES	48"
NC	Northern Catalpa	Catalpa speciosa	1	50'	2" Cal.	B&B	24"	16"	40"	16"	4	YES	48"
HB	Hackberry	Celtis occidentalis 'Chicagoland'	1	55'	2" Cal.	B&B	24"	16"	40"	16"	4	YES	48"
RO	Red Oak	Quercus rubra	1	70'	2" Cal.	B&B	24"	16"	40"	16"	4	YES	48"
PF	Flowering Crabapple	Prairie Fire	3	20'	1.5" Cal.	B&B	20"	15"	32"	16"	3	YES	48"
JTL	Japanese Tree Lilac	Syringa Reticulata 'Ivory Silk'	3	25'	1.5" Cal.	B&B	20"	15"	32"	16"	3	YES	48"
	EVERGREEN TREES												
WS	White Spruce	Picea glauca	4	55'	6'HT	B&B	22"	15"	38"	15"	3	YES	48"
WP	White Pine	Pinus strobus	4	70'	6'HT	B&B	22"	15"	38"	15"	3	YES	48"

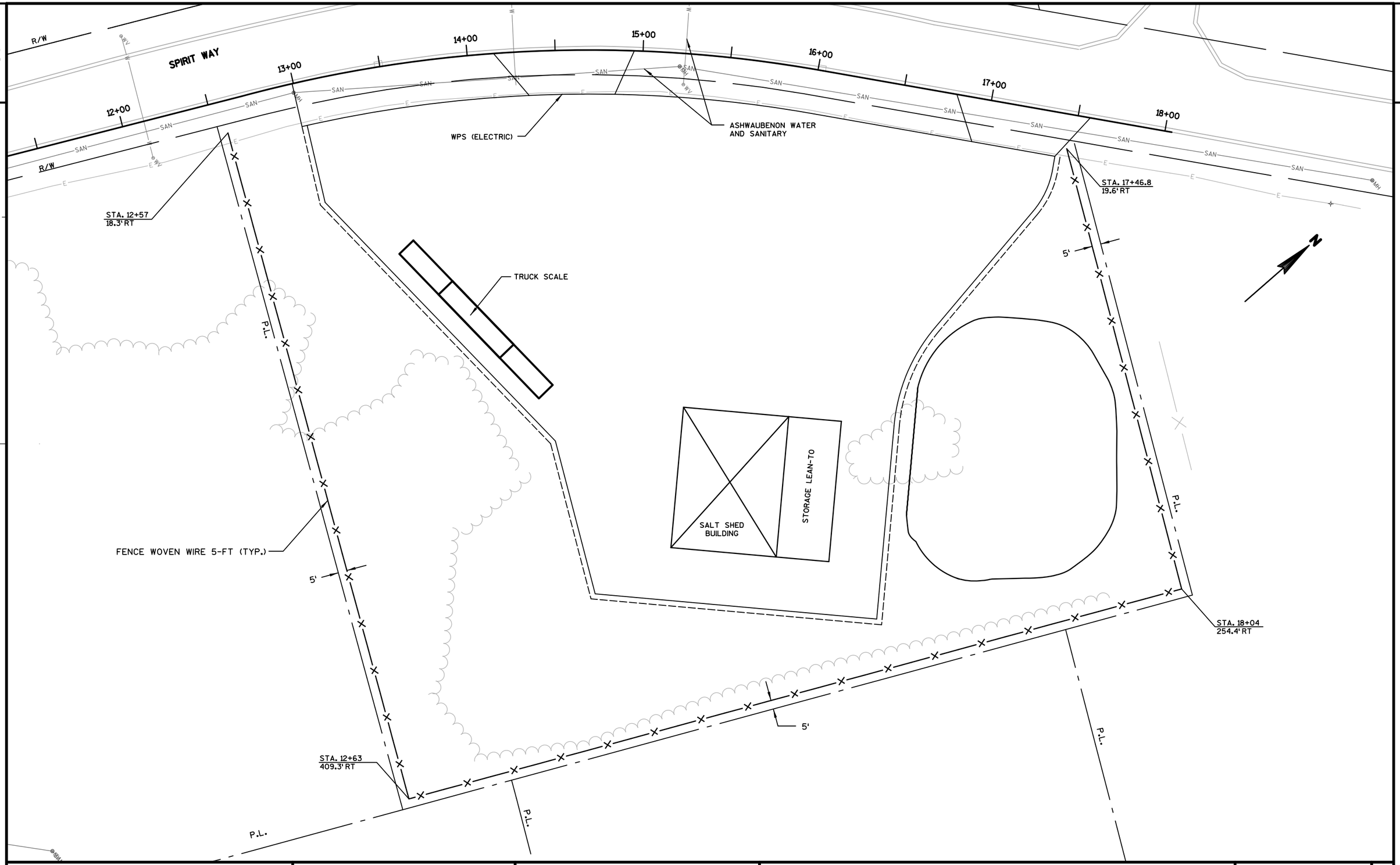
NOTE: NO TREE PLANTINGS ARE ALLOWED WITHIN 8-FEET OF WATER MAIN OR SANITARY SEWER PER VILLAGE OF ASHWAUBENON UTILITY WORK PLANS.

PLANTING LOCATIONS AS SHOWN ON PLANS MAY BE ADJUSTED TO FIT FIELD CONDITIONS AS DIRECTED BY THE ENGINEER.



PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	LANDSCAPING DETAIL	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\023101_pl.dgn PLOT DATE : 4/11/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42



PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	FENCING DETAIL	SHEET	E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\027101_fn.dgn PLOT DATE : 7/25/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$ WISDOT/CADDS SHEET 42

PES ENTERPRISES INC.

PI = 10+00.00
Y = 545,871.806
X = 78,575.299

PI = 14+39.11
Y = 546,264.762
X = 78,771.237
DELTA = 25°15'50.39" (RT)
D = 7°35'15.97"
T = 169.23'
L = 332.95'
R = 755.11'
PC = 12+69.88
PT = 16+02.83

FAMILY SERVICES OF
NORTHEAST WISCONSIN

PI = 18+03.90
Y = 546,496.729
X = 79,059.876

MASTER FLEET
PROPERTIES LLC

RACHEL GAY

P.L.

R/W

SPIRIT WAY

PI 10+00.00
10+00
11+00
12+00
PC 12+69.88
13+00
14+00
PI 14+39.11
15+00
16+00
PT 16+02.83
17+00
18+00
PI 18+03.90
N 26° 48' 16" E
N 51° 09' 11" E

W. MAIN AVENUE

WETLAND BOUNDARY

WISCONSIN DEPARTMENT
OF TRANSPORTATION

WISCONSIN DEPARTMENT
OF TRANSPORTATION

VILLAGE OF ASHWAUBENON

HOLTGER BROTHERS INC.

HOLTGER BROTHERS INC.

PROJECT NO: 1133-03-70	HWY: USH 41	COUNTY: BROWN	ALIGNMENT DETAIL	SHEET E

FILE NAME : S:\MAD\1000--1099\1089\287\Micros\Plan\027201_ad.dgn PLOT DATE : 4/11/2013 PLOT BY : _username_ PLOT NAME : PLOT SCALE : $$.....plotscale.....$$

DATE 11NOV13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1133-03-70 QUANTITY
0010	201.0115	CLEARING *P*	ACRE	2.650	2.650
0020	201.0215	GRUBBING *P*	ACRE	2.650	2.650
0030	204.0130	REMOVING CURB *P*	LF	157.000	157.000
0040	205.0100	EXCAVATION COMMON *P*	CY	14,400.000	14,400.000
0050	209.0100	BACKFILL GRANULAR	CY	3,640.000	3,640.000
0060	213.0100	FINISHING ROADWAY (PROJECT) 01. 1133-03-70	EACH	1.000	1.000
0070	305.0110	BASE AGGREGATE DENSE 3/4-INCH	TON	80.000	80.000
0080	305.0120	BASE AGGREGATE DENSE 1 1/4-INCH	TON	6,970.000	6,970.000
0090	416.0170	CONCRETE DRIVEWAY 7-INCH	SY	355.000	355.000
0100	455.0605	TACK COAT	GAL	450.000	450.000
0110	465.0120	ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES	TON	2,430.000	2,430.000
0120	522.1012	APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH	EACH	2.000	2.000
0130	606.0300	RIPRAP HEAVY	CY	226.000	226.000
0140	608.0312	STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH	LF	57.000	57.000
0150	611.0530	MANHOLE COVERS TYPE J	EACH	1.000	1.000
0160	611.2005	MANHOLES 5-FT DIAMETER	EACH	1.000	1.000
0170	616.0100	FENCE WOVEN WIRE (HEIGHT) 01. 5-FT	LF	1,105.000	1,105.000
0180	619.1000	MOBILIZATION	EACH	1.000	1.000
0190	625.0500	SALVAGED TOPSOIL	SY	3,350.000	3,350.000
0200	627.0200	MULCHING	SY	4,190.000	4,190.000
0210	628.1504	SILT FENCE	LF	1,200.000	1,200.000
0220	628.1520	SILT FENCE MAINTENANCE	LF	1,200.000	1,200.000
0230	628.1905	MOBILIZATIONS EROSION CONTROL	EACH	2.000	2.000
0240	628.1910	MOBILIZATIONS EMERGENCY EROSION CONTROL	EACH	2.000	2.000
0250	628.2002	EROSION MAT CLASS I TYPE A	SY	1,340.000	1,340.000
0260	628.2004	EROSION MAT CLASS I TYPE B	SY	215.000	215.000
0270	628.7015	INLET PROTECTION TYPE C	EACH	2.000	2.000
0280	628.7560	TRACKING PADS	EACH	1.000	1.000
0290	629.0210	FERTILIZER TYPE B	CWT	3.000	3.000
0300	630.0130	SEEDING MIXTURE NO. 30	LB	96.000	96.000
0310	630.0200	SEEDING TEMPORARY	LB	115.000	115.000
0320	632.0101	TREES (SPECIES, ROOT, SIZE) 01. NORTHERN CATALPA, B & B 2-INCH CAL	EACH	2.000	2.000
0330	632.0101	TREES (SPECIES, ROOT, SIZE) 02. RED OAK, B & B, 2-INCH CAL	EACH	2.000	2.000
0340	632.0101	TREES (SPECIES, ROOT, SIZE) 03. FLOWERING CRABAPPLE, B & B 1.5-INCH CAL	EACH	4.000	4.000
0350	632.0101	TREES (SPECIES, ROOT, SIZE) 04. JAPANESE TREE LILAC, B & B, 1.5-INCH CAL	EACH	4.000	4.000
0360	632.0101	TREES (SPECIES, ROOT, SIZE) 05. AUTUMN BLAZE MAPLE, B & B 2-INCH CA	EACH	4.000	4.000
0370	632.0101	TREES (SPECIES, ROOT, SIZE) 06. HACKBERRY, B & B, 2-INCH CAL	EACH	1.000	1.000
0380	632.0101	TREES (SPECIES, ROOT, SIZE) 07. WHITE SPRUCE, B & B, 6-FOOT HT	EACH	13.000	13.000
0390	632.0101	TREES (SPECIES, ROOT, SIZE) 08. WHITE PINE, B & B, 6-FOOT HT	EACH	2.000	2.000
0400	632.9101	LANDSCAPE PLANTING SURVEILLANCE AND CARE CYCLES	EACH	13.000	13.000
0410	643.0100	TRAFFIC CONTROL (PROJECT) 01. 1133-03-70	EACH	1.000	1.000
0420	643.0300	TRAFFIC CONTROL DRUMS	DAY	1,030.000	1,030.000
0430	643.0900	TRAFFIC CONTROL SIGNS	DAY	412.000	412.000

3

DATE 11NOV13 E S T I M A T E O F Q U A N T I T I E S

LINE NUMBER	ITEM	ITEM DESCRIPTION	UNIT	TOTAL	1133-03-70 QUANTITY
0440	645.0120	GEOTEXTILE FABRIC TYPE HR	SY	480.000	480.000
0450	SPV.0035	SPECIAL 01. POND CLAY LINER	CY	590.000	590.000
0460	SPV.0035	SPECIAL 02. TOPSOIL SPECIAL	CY	128.000	128.000
0470	SPV.0060	SPECIAL 01. RESTRICTOR PIPE	EACH	1.000	1.000
0480	SPV.0060	SPECIAL 02. YARD HYDRANT ASSEMBLY	EACH	1.000	1.000
0490	SPV.0060	SPECIAL 03. SEDIMENTATION BASIN	EACH	1.000	1.000
0500	SPV.0075	SPECIAL 01. STREET SWEEPING	HRS	30.000	30.000
0510	SPV.0085	SPECIAL 01. TALL FESCUE SEED	LB	65.000	65.000
0520	SPV.0090	SPECIAL 01. WATER COPPER 2-INCH	LF	194.000	194.000
0530	SPV.0105	SPECIAL 01. SALT STORAGE FACILITY	LS	1.000	1.000
0540	SPV.0105	SPECIAL 02. SURVEY PROJECT I.D. 1133-03-70	LS	1.000	1.000
0550	SPV.0105	SPECIAL 03. TRUCK SCALE	LS	1.000	1.000
0560	SPV.0180	SPECIAL 01. QUARRIED LIMESTONE SLABS	SY	280.000	280.000

CLEARING AND GRUBBING

CATEGORY	STATION - STATION	LOCATION	201.0115 CLEARING ACRE	201.0215 GRUBBING ACRE
0010	16+00 - 18+00	RT	2.65	2.65

REMOVING CURB

CATEGORY	STATION - STATION	LOCATION	204.0130 LF
0010	14+15 - 14+95	RT	80
	16+80 - 17+57	RT	77
		TOTAL	157

FINISHING ROADWAY

CATEGORY	PROJECT I.D.	213.0100 EACH
0010	1133-03-70	1

CONCRETE DRIVEWAY 7-INCH

CATEGORY	STATION	LOCATION	416.0170 SY
0010	14+50	RT	175
	17+00	RT	180
		TOTAL	355

EARTHWORK SUMMARY

CATEGORY	STATION - STATION	LOCATION	(1) EXCAVATION COMMON	(2) SALVAGED/ UNUSABLE PAVEMENT MATERIAL REMOVAL	(3) AVAILABLE MATERIAL	(4) EBS EXCAVATION 5% OF AVAILABLE MATERIAL	* 209.0100 BACKFILL GRANULAR	(5) 205.0100 TOTAL EXCAVATION COMMON	(6) EBS EXCAVATION REDUCED FACTOR 0.8	(1) UNEXPANDED FILL	(7) EXPANDED FILL FACTOR 1.30	(8) MASS ORDINATE	(9) 208.0100 -BORROW	(9) +WASTE
			CY	CY	CY	CY	CY	CY	CY	CY	CY		CY	CY
0010	12+99.34 - 17+57.00	LT & RT	13,700	0	13,700	685	685	14,385	548	580	42	13,658		13,658
	TOTALS		13,700	0	13,700	685	685	14,385	548	580	42	13,658	0	13,658
	PAY QUANTITIES		-	-	-		690	14,400		-	-	-	-	-

1) QUANTITIES BASED ON PROPOSED CONTOURS
2) SALVAGED/UNUSABLE MATERIALS ARE INCLUDED IN EXCAVATION COMMON COLUMN
3) AVAILABLE MATERIAL = EXCAVATION COMMON - SALVAGED MATERIALS
4) EBS EXCAVATION TO BE BACKFILLED WITH BACKFILL GRANULAR
5) TOTAL EXCAVATION COMMON = EXCAVATION COMMON + EBS EXCAVATION.
6) REDUCED EBS IN FILL: EXCAVATED EBS MATERIAL IS USEABLE IN FILLS OUTSIDE THE 1:1 SLOPE. EBS IN FILL REDUCTION FACTOR = 0.8.
7) (EXPANDED FILL FACTOR = (UNEXPANDED FILL - EBS EXCAVATION REDUCED)*1.30
8) THE MASS ORDINATE + OR - QTY CALCULATED FOR THE CATEGORY.
   PLUS QTY INDICATES AN EXCESS OF MATERIAL WITHIN THE CATEGORY,
   MINUS QTY INDICATES A SHORTAGE OF MATERIAL WITHIN THE CATEGORY
9) WASTE = POSITIVE MASS ORDINATE, BORROW = NEGATIVE MASS ORDINATE

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

BASE AGGREGATE SUMMARY

CATEGORY	STATION - STATION	LOCATION	* 209.0100 BACKFILL GRANULAR CY	305.0110 BASE AGGREGATE DENSE 3/4-INCH TON	305.0120 BASE AGGREGATE DENSE 1 1/4-INCH TON
0010	12+99.34 - 17+57.00	RT	2950	80	6,850
	DRIVEWAY APRONS	RT	---	---	120
		TOTALS	2950	80	6970

*ADDITIONAL QUANTITIES LISTED ELSEWHERE

RIPRAP SUMMARY

CATEGORY	STATION	LOCATION	606.0300 RIPRAP HEAVY CY	645.0120 GEOTEXTILE FABRIC TYPE HR SY	REMARKS
0010	17+35	POND RT	225	460	INSTALL AT POND EL.=612.00 TO EL.=614.50
	17+32.5	302.4' RT	1	20	
		TOTALS	226	480	

TRACKING PADS

CATEGORY	628.7560 EACH
0010	1

ASPHALTIC SURFACE DRIVEWAYS AND FIELD ENTRANCES

CATEGORY	STATION - STATION	LOCATION	465.0120 TON	455.0605 TACK COAT GAL
0010	13+02 - 17+41	RT	2,430	450

MOBILIZATION

CATEGORY	PROJECT I.D.	619.1000 EACH
0010	1133-03-70	1

SILT FENCE

CATEGORY	STATION - STATION	LOCATION	628.1504 SILT FENCE LF	628.1520 SLIT FENCE MAINTENANCE LF
0010	12+94 - 17+66	RT	960	960
	UNDISTRIBUTED	RT	240	240
		TOTALS	1,200	1,200

WOVEN WIRE FENCE 5-FT

CATEGORY	STATION - STATION	LOCATION	616.0100 LF
0010	12+57 - 17+47	RT	1,105

MOBILIZATIONS EROSION CONTROL

CATEGORY	628.1905 EACH
0010	2

MOBILIZATIONS EMERGENCY EROSION CONTROL

CATEGORY	628.1910 EACH
0010	2

STORM SEWER SUMMARY

CATEGORY	STATION - STATION	LOCATION	522.1012 APRON ENDWALLS FOR CULVERT PIPE REINFORCED CONCRETE 12-INCH EACH	608.0312 STORM SEWER PIPE REINFORCED CONCRETE CLASS III 12-INCH LF	SPV.0060.01 RESTRICTOR PIPE EACH	611.2005 MANHOLES 5-FT DIAMETER EACH	611.0530 MANHOLE COVERS TYPE J EACH	RIM/GRATE ELEVATION	T.O.S ELEVATION	DEPTH (FT)	INLET ELEVATION	DISCHARGE ELEVATION
0010	17+32.7 - 17+34.7	244.4' RT	1	23	---	---	---	---	---	---	611.98	611.90
	17+34.7	266.6' RT	---	---	---	1	1	617.00	615.75	3.95	---	---
	17+34.7 - 17+32.6	300.4' RT	1	34	1	---	---	---	---	---	611.80	611.63
		TOTALS	2	57	1	1	1					

FINISHING ITEMS

CATEGORY	STATION - STATION	LOCATION	625.0500 SALVAGED TOPSOIL SY	627.0200 MULCHING SY	629.0210 FERTILIZER TYPE B CWT	630.0130 SEEDING MIXTURE NO. 30 LB	630.0200 SEEDING TEMPORARY LB	SPV.0085.01 TALL FESCUE SEED LB	628.2002 EROSION MAT CLASS I TYPE A SY	628.2004 EROSION MAT CLASS I TYPE B SY	REMARKS
0010	12+99 - 14+34	RT	360	360	0.2	6	10	---	---	---	
	14+90 - 16+92	RT	540	540	0.3	10	15	---	---	---	
	12+94 - 17+66	RT	2,450	2,450	1.6	45	65	---	---	170	
	17+35	POND RT	---	---	---	15	---	---	260	---	INSTALL AT POND EL.=609.00 TO EL.=611.00
	17+35	POND RT	---	---	---	---	---	50	810	---	INSTALL AT POND EL.=614.50 TO EL.=617.00
	UNDISTRIBUTED		0	840	0.9	20	25	15	270	45	
		TOTALS	3,350	4,190	3.0	96	115	65	1,340	215	

INLET PROTECTION TYPE C

CATEGORY	STATION	628.7015 EACH
0010	13+50	1
	16+03	1
	TOTAL	2

TRAFFIC CONTROL

CATEGORY	643.0100 TRAFFIC CONTROL (1133-03-70) EACH	643.0300 DRUMS EACH	643.0300 DRUMS DAYS	643.0900 SIGNS EACH	643.0900 SIGNS DAYS
0010	1	10	1,030	4	412

TOPSOIL SPECIAL

CATEGORY	STATION	LOCATION	SPV.0035.02 CY
0010	12+65	79.0' RT	4
	12+69	41.4' RT	4
	12+84	110.3' RT	4
	12+86	74.4' RT	4
	12+87	57.5' RT	4
	12+98	87.8' RT	4
	13+11	104.7' RT	4
	13+11	123.1' RT	4
	13+24	19.1' RT	4
	13+29	130.1' RT	4
	13+31	156.0' RT	4
	13+43	19.5' RT	4
	13+63	19.2' RT	4
	13+81	18.5' RT	4
	14+00	18.5' RT	4
	15+14	20.3' RT	4
	15+37	18.2' RT	4
	15+80	19.7' RT	4
	15+93	20.1' RT	4
	16+07	19.8' RT	4
	16+46	18.8' RT	4
	16+61	19.7' RT	4
	17+22	110.6' RT	4
	17+38	101.9' RT	4
	17+46	84.2' RT	4
	17+53	60.3' RT	4
	17+57	104.1' RT	4
	17+72	101.4' RT	4
	17+91	125.3' RT	4
	18+02	145.2' RT	4
	18+04	155.4' RT	4
	18+04	170.0' RT	4
			128

TREES

CATEGORY	BID ITEM NUMBER	SYMBOL	COMMON NAME	SIZE WHEN PLANTED	ROOT ZONE MODE	TOTAL QUANTITY EACH
0010	632.0101.01	NC	NORTHERN CATALPA	2" CAL.	B&B	2
	632.0101.02	RO	RED OAK	2" CAL.	B&B	2
	632.0101.03	PF	FLOWERING CRABAPPLE	1.5" CAL.	B&B	4
	632.0101.04	JTL	JAPANESE TREE LILAC	1.5" CAL.	B&B	4
	632.0101.05	AB	AUTUMN BLAZE MAPLE	2" CAL.	B&B	4
	632.0101.06	HB	HACKBERRY	2" CAL.	B&B	1
	632.0101.07	WS	WHITE SPRUCE	6' HT	B&B	13
	632.0101.08	WP	WHITE PINE	6' HT	B&B	2

LANDSCAPE PLANTING SURVEILLANCE & CARE CYCLES

CATEGORY	MONTH	632.9101 EACH
0010	JUNE 2014	2
	JULY 2014	2
	AUGUST 2014	2
	SEPTEMBER 2014	2
	OCTOBER 2014	2
	APRIL 2015	1
	MAY 2015	2
	TOTAL	13

3

POND CLAY LINER

CATEGORY	STATION	LOCATION	SPV.0035.01 CY	REMARKS
0010	17+35	POND RT	590	INSTALL AT POND EL.=607.00 TO EL.=614.50

YARD HYDRANT ASSEMBLY

CATEGORY	STATION	LOCATION	SPV.0060.02 EACH
0010	16+01.4	200.23' RT	1

SEDIMENTATION BASIN

CATEGORY	STATION	LOCATION	SPV.0060.03 EACH
0010	17+50	RT	1

STREET SWEEPING

CATEGORY	LOCATION	SPV.0075.01 HRS
0010	SPIRIT WAY	30

WATER COPPER 2-INCH

CATEGORY	STATION - STATION	LOCATION	SPV.0090.01 LF
0010	15+24.2 - 16+01.4	RT	194

SALT STORAGE FACILITY

CATEGORY	STATION	LOCATION	SPV.0105.01 L.S.
0010	15+42	200' RT	1

SURVEY PROJECT

CATEGORY	ID	SPV.0105.02 L.S.
0010	1133-03-70	1

TRUCK SCALE

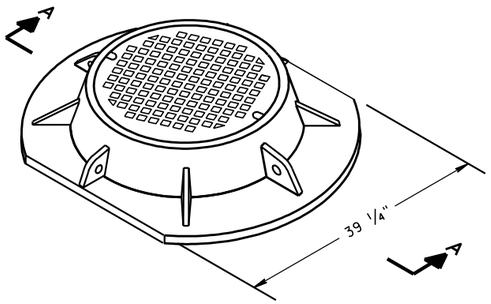
CATEGORY	STATION	LOCATION	SPV.0105.03 L.S.
0010	13+54	100.5' RT	1

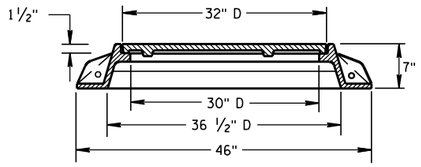
QUARRIED LIMESTONE SLABS

CATEGORY	STATION	LOCATION	SPV.0180.01 SY	REMARKS
0010	17+35	POND RT	280	INSTALL AT POND EL.=611.00 TO EL.=612.00

Standard Detail Drawing List

08A05-18D	INLET COVER, TYPE BW, Z MANHOLE COVERS, TYPE K, J, J-S, L & M
08B09-01	MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER
08E09-06	SILT FENCE
08E10-02	INLET PROTECTION TYPE A, B, C AND D
08E14-01	TRACKING PAD
08F01-11	APRON ENDWALLS FOR CULVERT PIPE
14A02-01	TREE PLANTING DETAIL
15B01-08A	FENCE WOVEN WIRE
15B01-08B	FENCE WOVEN WIRE



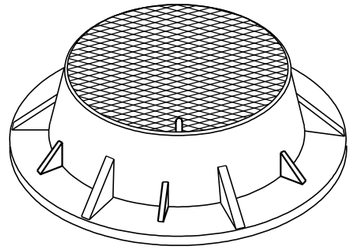


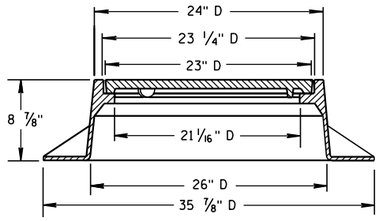
SECTION A-A

TYPE "K"

(APPROXIMATE WEIGHT 439 LBS.)

FRAME.....216 LBS.
LID.....223 LBS.

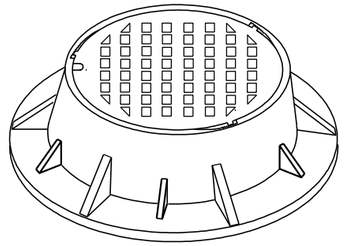


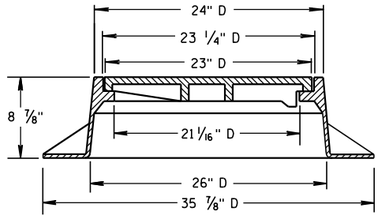


TYPE "J"

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....152 LBS.
LID.....115 LBS.





TYPE "J" SPECIAL

TYPE "B" NON-ROCKING SELF-SEAL LID

(APPROXIMATE WEIGHT 267 LBS.)

FRAME.....158 LBS.
LID.....109 LBS.

(NOTED AS TYPE J-S ON THE DRAINAGE TABLE)

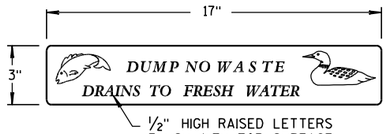
GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

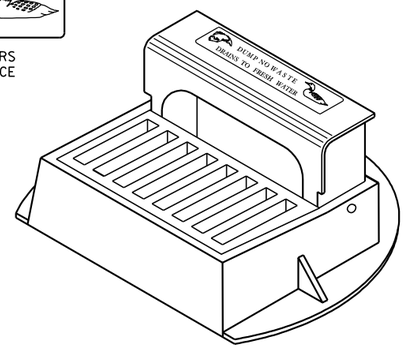
DETAIL DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR MANHOLE COVERS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

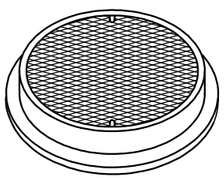
ROUND FRAMES AND COVERS SHALL HAVE CONTINUOUSLY MACHINED BEARING SURFACES TO PREVENT ROCKING AND RATTLING.

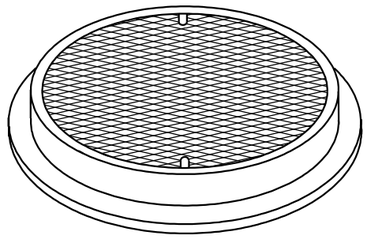
THE ACTUAL WEIGHT OF COVERS MAY VARY WITH 5 PERCENT, PLUS OR MINUS, OF THE APPROXIMATE WEIGHT.

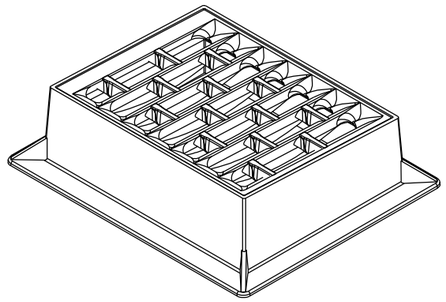


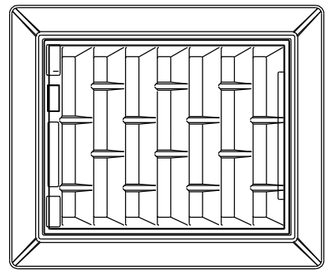
LOGO DETAIL

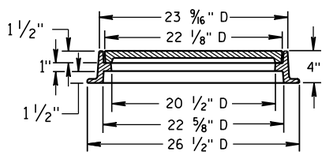








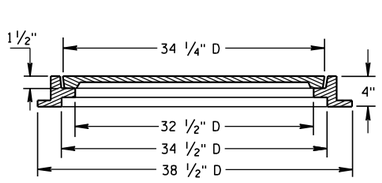




TYPE "L"

(APPROXIMATE WEIGHT 158 LBS.)

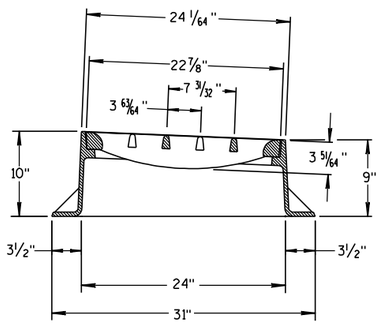
FRAME.....81 LBS.
LID.....77 LBS.

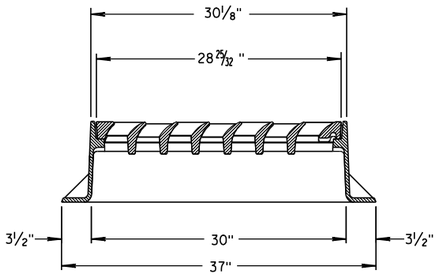


TYPE "M"

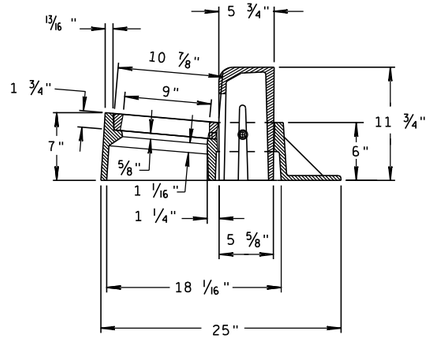
(APPROXIMATE WEIGHT 377 LBS.)

FRAME..... 125 LBS.
LID..... 252 LBS.





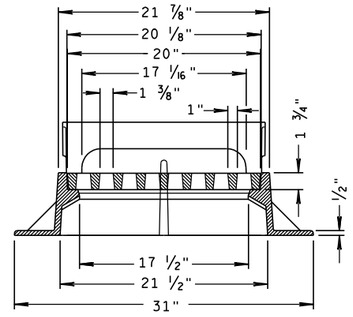
INLET COVER TYPE "BW"



INLET COVER TYPE "Z"

(APPROXIMATE WEIGHT 344 LBS.)

FRAME.....206 LBS.
GRATE..... 46 LBS.
CURB BOX..... 92 LBS.



INLET COVERS, TYPE BW, Z
MANHOLE COVERS, TYPE K, J, J-S, L & M

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zaas
ROADWAY STANDARDS ENGINEER

FHWA

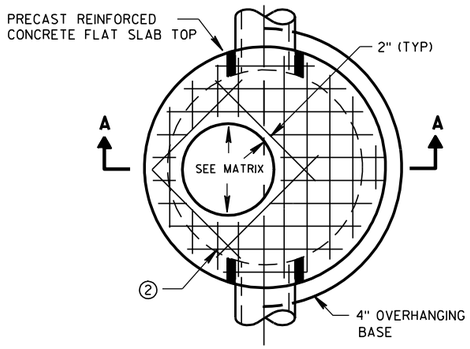
NT

6

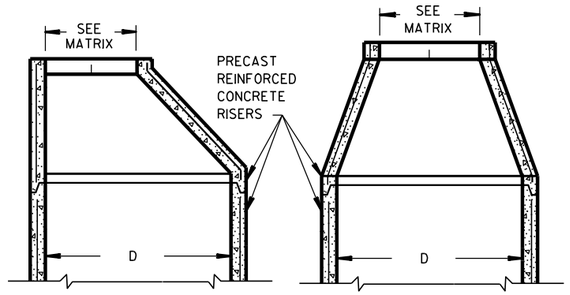
S.D.D. 8 A 5-18d

6

S.D.D. 8 A 5-18d

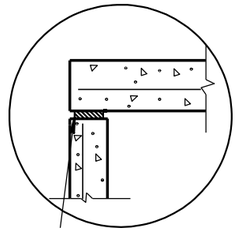


PLAN VIEW CIRCULAR OPENING

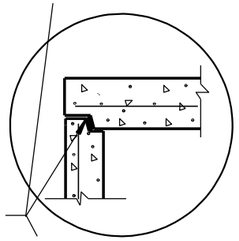


OPTIONAL PRECAST REINFORCED CONCRETE ECCENTRIC TOP

OPTIONAL PRECAST REINFORCED CONCRETE CONCENTRIC TOP

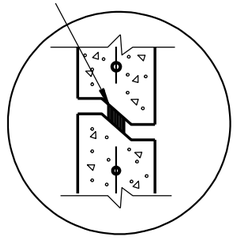


TOP WITH PLAIN END JOINT



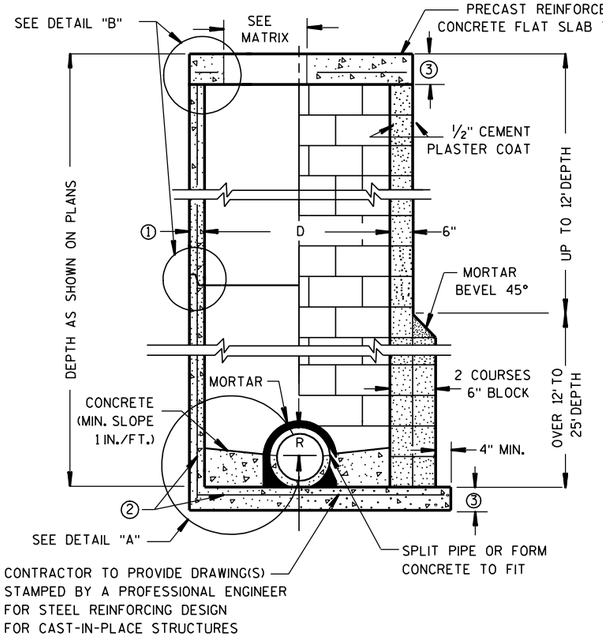
JOINTS TO BE SEALED WITH A BUTYL RUBBER SEAL PER SEALANT MANUFACTURERS RECOMMENDATIONS CONFORMING TO ASTM C990 (TYP)

TOP WITH TONGUE AND GROOVE JOINT



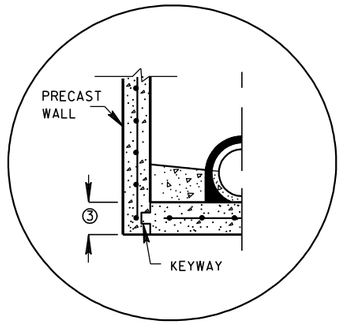
RISER WITH TONGUE AND GROOVE JOINT

DETAIL "B"

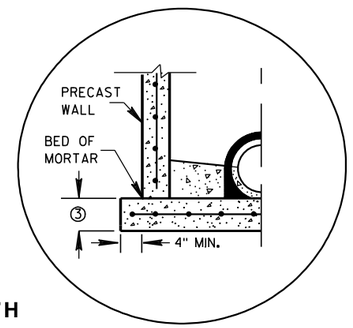


PRECAST REINFORCED CONCRETE WITH MONOLITHIC BASE

CONCRETE BLOCK WITH CAST-IN-PLACE OR PRECAST REINFORCED CONCRETE BASE ②

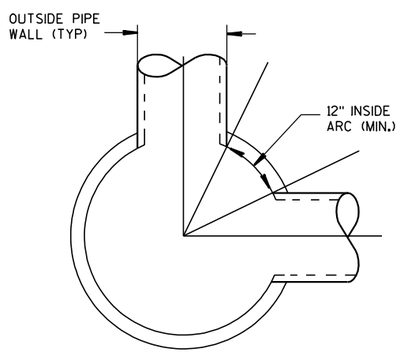


PRECAST REINFORCED CONCRETE WITH INTEGRAL BASE OPTION



SEPERATE PRECAST REINFORCED CONCRETE BASE OPTION

DETAIL "A"



DETAIL "C"

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

UNLESS OTHERWISE AUTHORIZED IN WRITING BY THE ENGINEER, THE CONTRACTOR SHALL NOT ORDER AND DELIVER PRECAST MANHOLE UNITS REQUIRED FOR THE PROJECT UNTIL A LIST OF SIZES IS FURNISHED BY THE ENGINEER.

DETAILED DRAWINGS FOR PROPOSED ALTERNATE DESIGNS FOR UNDERGROUND DRAINAGE STRUCTURES SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL PROVIDING THAT SUCH ALTERNATE DESIGNS MAKE PROVISION FOR EQUIVALENT CAPACITY AND STRENGTH.

ALL DRAINAGE STRUCTURES ARE DESIGNATED ON THE PLANS AS "MANHOLES 3X3-L", "CATCH BASINS 4-B", "INLETS 2X3-H", ETC. THE FIRST NUMBERS DESIGNATE THE SIZE OF THE STRUCTURE, AND THE FOLLOWING LETTER DESIGNATES THE TYPE OF COVER TO BE USED TO COMPRISE THE COMPLETE UNIT.

BASES SHALL BE PLACED ON A BED OF MATERIAL AT LEAST 6 INCHES IN DEPTH, WHICH MEETS THE REQUIREMENTS OF GRANULAR BACKFILL. THIS BEDDING SHALL BE COMPACTED AND PROVIDE UNIFORM SUPPORT FOR THE ENTIRE AREA OF THE BASE.

PRECAST REINFORCED CONE TOPS (ECCENTRIC OR CONCENTRIC) OR PRECAST REINFORCED FLAT SLAB TOPS MAY BE USED ON CONCRETE BLOCK STRUCTURES. THE CONE TOPS SHALL BE INSTALLED ON A BED OF MORTAR.

ECCENTRIC CONE TOPS MAY BE USED ON ALL STRUCTURES, AND CONCENTRIC CONE TOPS SHALL BE USED ONLY ON STRUCTURES 5 FEET OR LESS IN DEPTH, UNLESS OTHERWISE DIRECTED BY THE ENGINEER.

STEPS MEETING AASHTO M199 AND THE FOLLOWING REQUIREMENTS SHALL BE INSTALLED IN ALL STRUCTURES OVER 5 FEET IN DEPTH: 16 INCH C-C MAXIMUM SPACING; PROJECT A MINIMUM CLEAR DISTANCE OF 4 INCHES FROM THE WALL AT THE POINT OF EMBEDMENT; MINIMUM LENGTH OF 10 INCHES; MINIMUM WALL EMBEDMENT OF 3 INCHES. FERROUS METAL STEPS NOT PAINTED OR TREATED TO RESIST CORROSION SHALL HAVE A MINIMUM CROSS SECTIONAL DIMENSION OF 1 INCH.

STEPS OF APPROVED POLYPROPYLENE PLASTIC COATED REINFORCEMENT BAR ARE ACCEPTABLE. REINFORCING BAR MUST BE A MINIMUM OF ½" AND MEET THE REQUIREMENTS OF ASTM A615.

CERTIFICATION SHALL BE PROVIDED THAT INSTALLED STEPS WHEN TESTED IN ACCORDANCE WITH SECTION 10 OF AASHTO T280 CAN WITHSTAND A VERTICAL LOAD OF 800 LBS. AND A HORIZONTAL LOAD OF 400 LBS.

ALL BAR STEEL REINFORCEMENT SHALL BE EMBEDDED 2 INCHES CLEAR UNLESS OTHERWISE SHOWN OR NOTED.

CONCRETE BLOCK WILL NOT BE PERMITED FOR STRUCTURES GREATER THAN 4 FEET IN DIAMETER.

PRECAST REINFORCED RISERS SHALL HAVE A TONGUE AND GROOVE JOINT WITH TONGUE UP OR DOWN.

ALL PRECAST MANHOLE UNITS SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF AASHTO DESIGNATION M 199.

4" OVERHANGING BASES ARE REQUIRED FOR ALL CONCRETE BLOCK INSTALLATIONS. 4" OVERHANG IS REQUIRED WHEN SEPERATE PRECAST BASE IS PROVIDED. OVERHANG IS NOT REQUIRED ON PRECAST STRUCTURES WITH AN INTEGRAL OR MONOLITHIC BASE.

FOR ADDITIONAL CONFIGURATIONS, MAINTAIN A MINIMUM OF 12 INCHES AS MEASURED FROM THE INSIDE OF THE STRUCTURE WALL BETWEEN THE OUTSIDE PIPE WALLS OF ADJACENT PIPES. SEE DETAIL "C".

① MINIMUM WALL THICKNESS SHALL BE 4 INCHES FOR 3-FT, 5 INCHES FOR 4-FT, 6 INCHES FOR 5-FT, 7 INCHES FOR 6-FT, 8 INCHES FOR 7-FT AND 9 INCHES FOR 8-FT DIAMETER PRECAST MANHOLES.

② FOR PRECAST MANHOLES PROVIDE REINFORCING STEEL IN ACCORDANCE TO AASHTO M199.

③ PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER OF 48" AND LESS SHALL HAVE A MINIMUM THICKNESS OF 6". PRECAST FLAT SLAB TOPS AND BASES WITH A DIAMETER LARGER THAN 48" SHALL HAVE A MINIMUM THICKNESS OF 8".

MANHOLE COVER OPENING MATRIX

MANHOLE COVER TYPE	C	ALL J'S	K	L	M
OPENING SIZE (FT)					
2 DIA.	X	X		X	
3 DIA.			X		X

PIPE MATRIX

MANHOLE SIZE	MAXIMUM INSIDE PIPE DIAMETER FOR TWO PIPES	
	180° SEPARATION (IN)	90° SEPARATION (IN)
3-FT	15	12
4-FT	24	18
5-FT	36	24
6-FT	42	36
7-FT	48	36
8-FT	60	42

MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED

6/5/2012
DATE

/S/ Jerry H. Zogg
ROADWAY STANDARDS DEVELOPMENT ENGINEER

FHWA

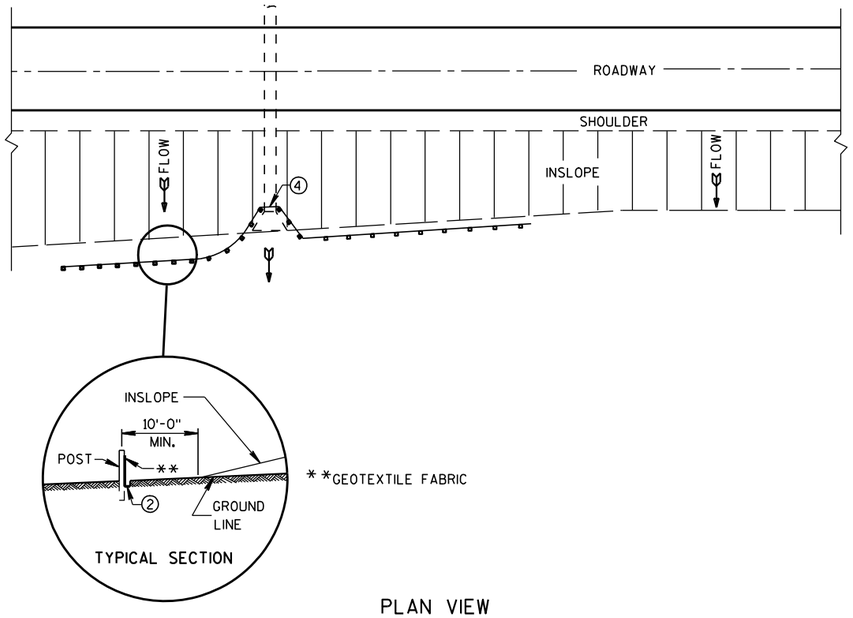
MANHOLES 3-FT, 4-FT, 5-FT, 6-FT, 7-FT AND 8-FT DIAMETER

6

S.D.D. 8 B 9-1

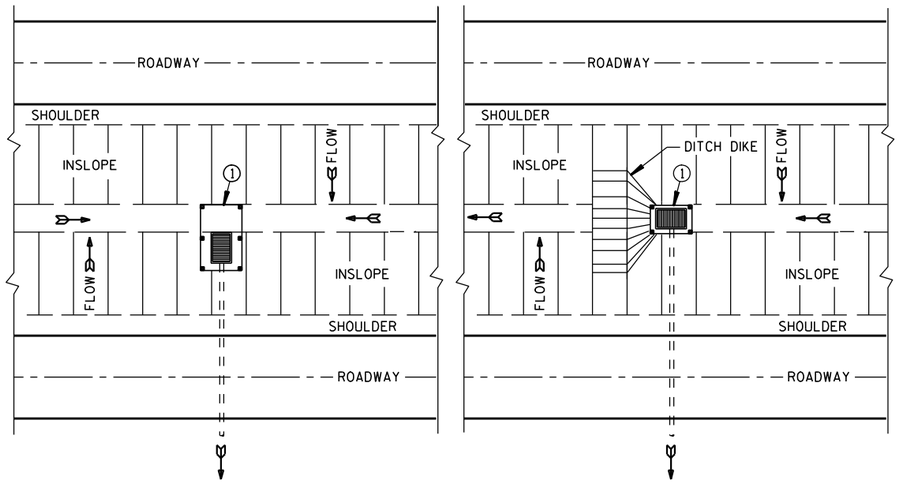
6

S.D.D. 8 B 9-1



PLAN VIEW

TYPICAL APPLICATION OF SILT FENCE



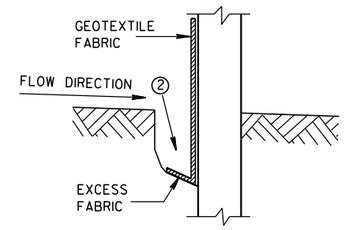
PLAN VIEW

SILT FENCE AT MEDIAN SURFACE DRAINS

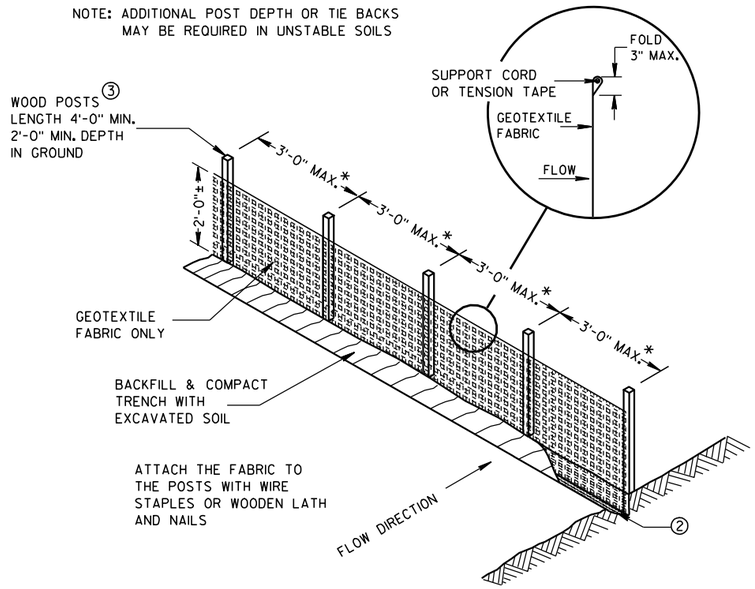
GENERAL NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND APPLICABLE SPECIAL PROVISIONS.

1. HORIZONTAL BRACE REQUIRED WITH 2" X 4" WOODEN FRAME OR EQUIVALENT AT TOP OF POSTS.
2. FOR MANUAL INSTALLATIONS THE TRENCH SHALL BE A MINIMUM OF 4" WIDE & 6" DEEP TO BURY AND ANCHOR THE GEOTEXTILE FABRIC. FOLD MATERIAL TO FIT TRENCH AND BACKFILL & COMPACT TRENCH WITH EXCAVATED SOIL.
3. WOOD POSTS SHALL BE A MINIMUM SIZE OF 1⅛" X 1⅛" OF OAK OR HICKORY.
4. SILT FENCE TO EXTEND ACROSS THE TOP OF THE PIPE.
5. CONSTRUCT SILT FENCE FROM A CONTINUOUS ROLL IF POSSIBLE BY CUTTING LENGTHS TO AVOID JOINTS. IF A JOINT IS NECESSARY USE ONE OF THE FOLLOWING TWO METHODS; A) OVERLAP THE END POSTS AND TWIST, OR ROTATE, AT LEAST 180 DEGREES, B) HOOK THE END OF EACH SILT FENCE LENGTH.

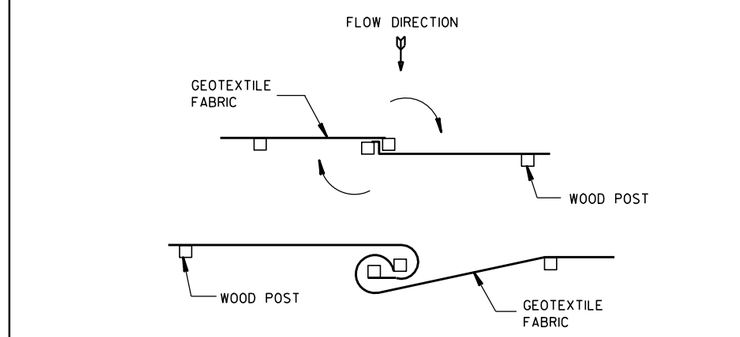


TRENCH DETAIL

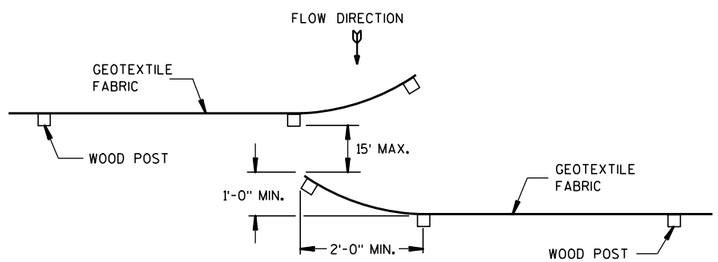


*NOTE: 8'-0" POST SPACING ALLOWED IF A WOVEN GEOTEXTILE FABRIC IS USED.

SILT FENCE

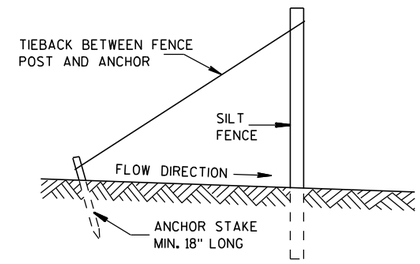


TWIST METHOD



HOOK METHOD

JOINING TWO LENGTHS OF SILT FENCE 5



SILT FENCE TIE BACK

(WHEN REQUIRED BY THE ENGINEER)

SILT FENCE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

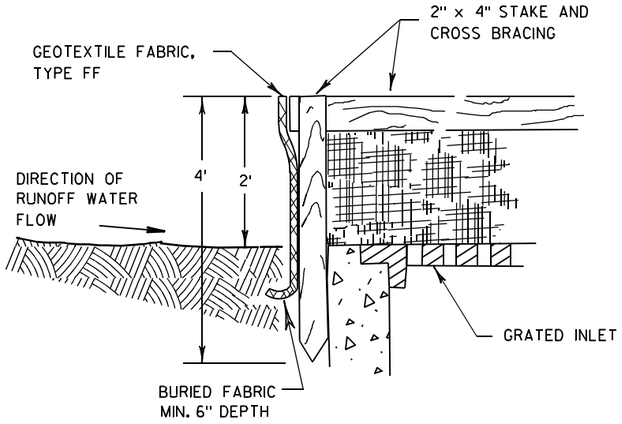
APPROVED
4-29-05
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

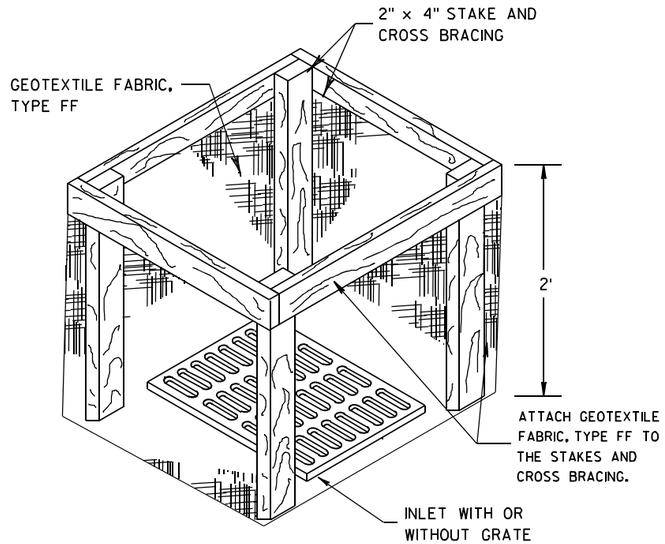
6

S.D.D. 8 E 9-6

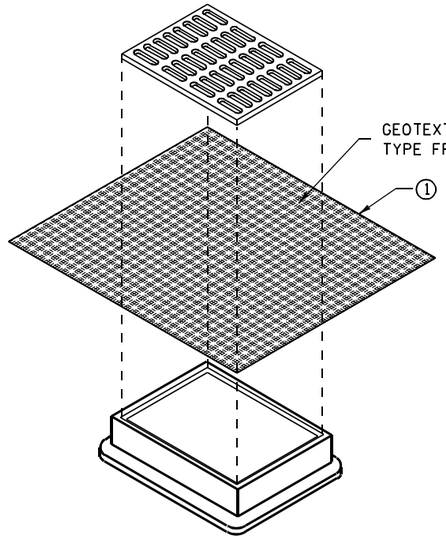
6

S.D.D. 8 E 9-6



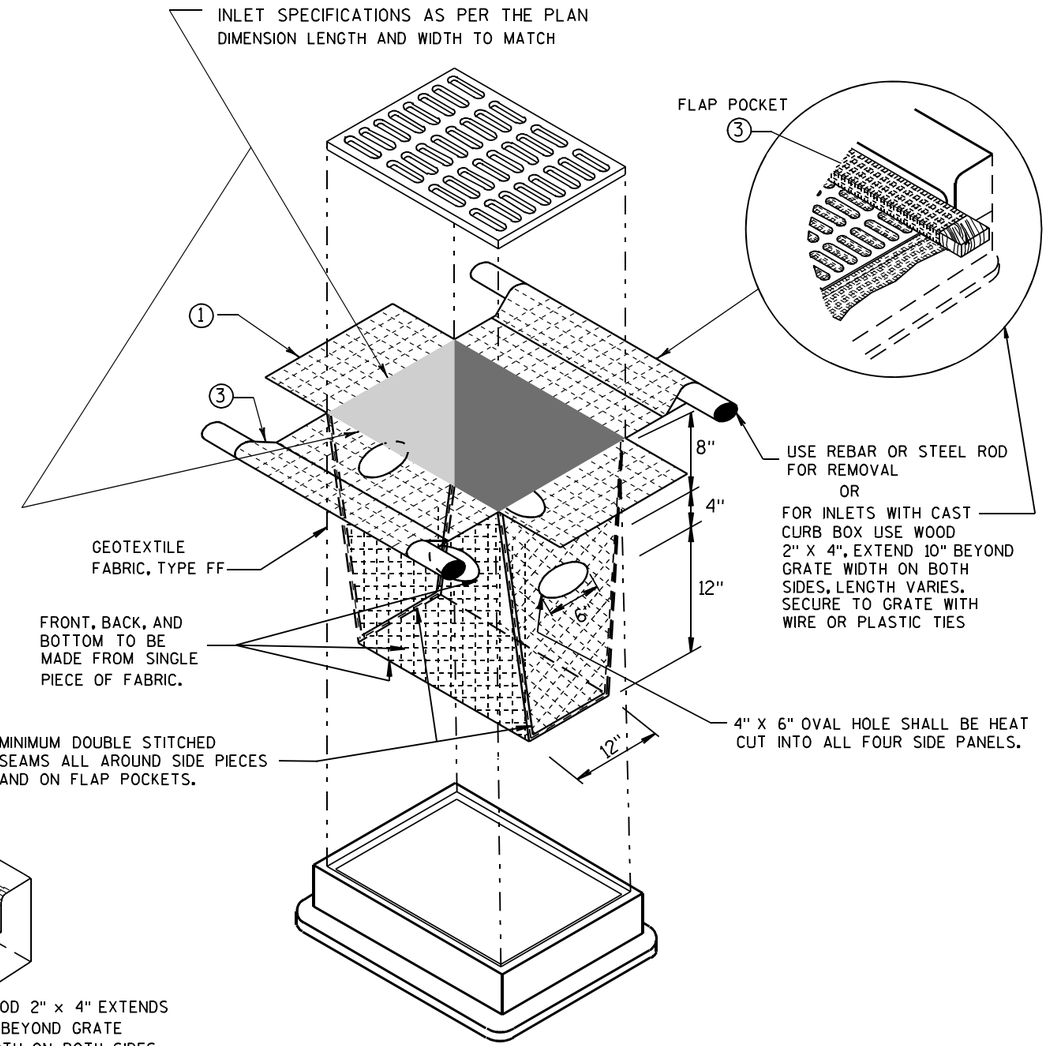


INLET PROTECTION, TYPE A



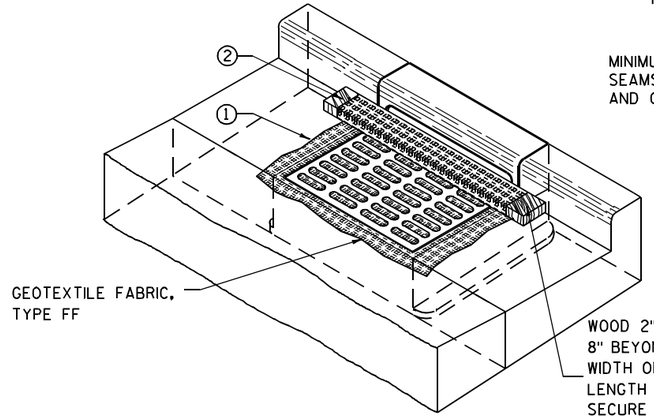
INLET PROTECTION, TYPE B
(WITHOUT CURB BOX)

(CAN BE INSTALLED IN ANY INLET WITHOUT A CURB BOX)



INLET PROTECTION, TYPE D

(CAN BE INSTALLED IN ANY INLET TYPE WITH
OR WITHOUT A CURB BOX AS PER NOTE ②)



INLET PROTECTION, TYPE C (WITH CURB BOX)

GENERAL NOTES

INLET PROTECTION DEVICES SHALL BE MAINTAINED OR REPLACED AT THE DIRECTION OF THE ENGINEER.

MANUFACTURED ALTERNATIVES APPROVED AND LISTED ON THE DEPARTMENT'S EROSION CONTROL PRODUCT ACCEPTABILITY LIST MAY BE SUBSTITUTED.

WHEN REMOVING OR MAINTAINING INLET PROTECTION, CARE SHALL BE TAKEN SO THAT THE SEDIMENT TRAPPED ON THE GEOTEXTILE FABRIC DOES NOT FALL INTO THE INLET. ANY MATERIAL FALLING INTO THE INLET SHALL BE REMOVED IMMEDIATELY.

① FINISHED SIZE, INCLUDING FLAP POCKETS WHERE REQUIRED, SHALL EXTEND A MINIMUM OF 10" AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

② FOR INLET PROTECTION, TYPE C (WITH CURB BOX), AN ADDITIONAL 18" OF FABRIC IS WRAPPED AROUND THE WOOD AND SECURED WITH STAPLES. THE WOOD SHALL NOT BLOCK THE ENTIRE HEIGHT OF THE CURB BOX OPENING.

③ FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2X4.

INSTALLATION NOTES

TYPE B & C

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

THE CONTRACTOR SHALL DEMONSTRATE A METHOD OF MAINTENANCE, USING A SEWN FLAP, HAND HOLDS OR OTHER METHOD TO PREVENT ACCUMULATED SEDIMENT FROM ENTERING THE INLET.

TYPE D

DO NOT INSTALL INLET PROTECTION TYPE D IN INLETS SHALLOWER THAN 30", MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE.

TRIM EXCESS FABRIC IN THE FLOW LINE TO WITHIN 3" OF THE GRATE.

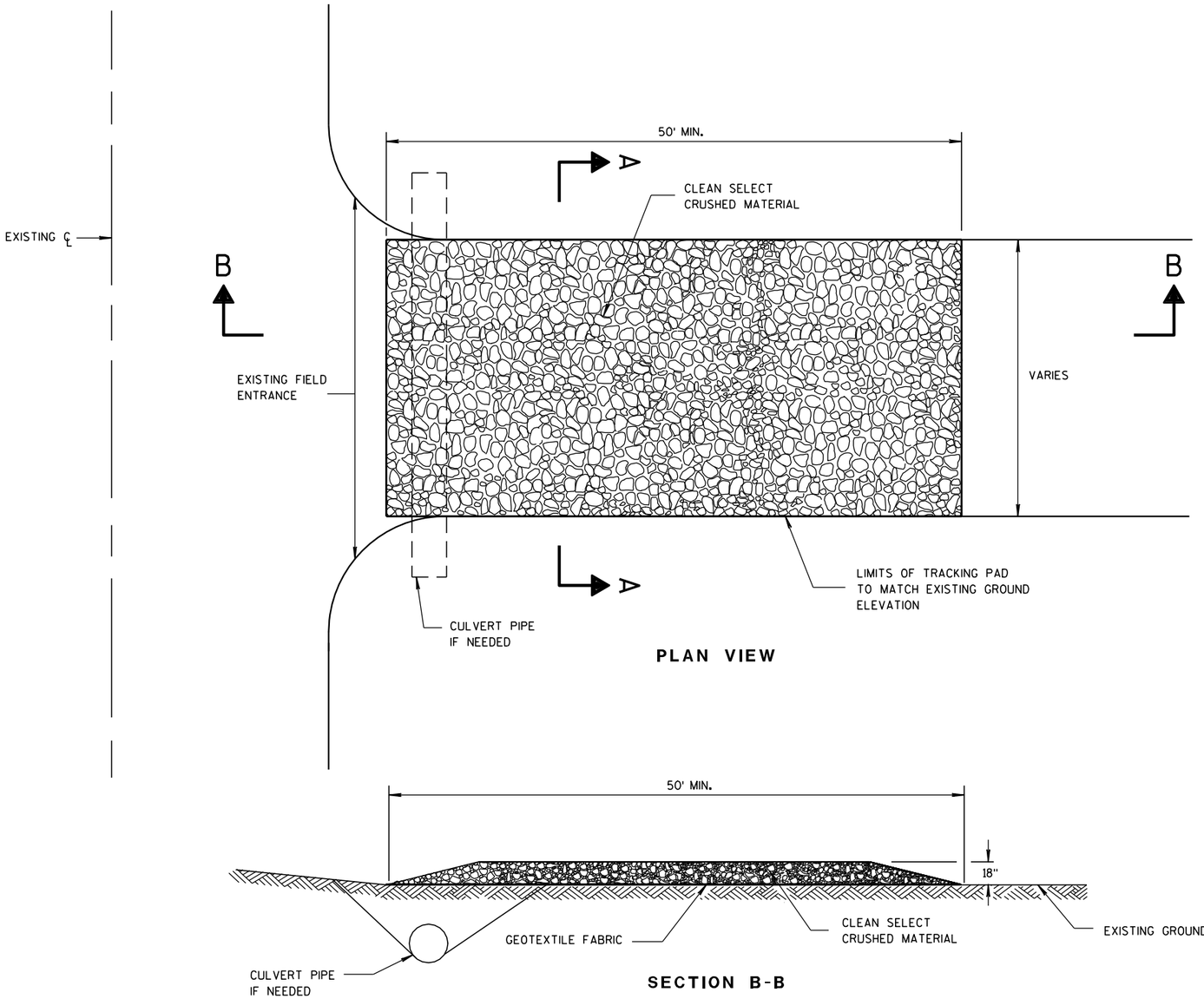
THE INSTALLED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE, BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES, OF 3". WHERE NECESSARY THE CONTRACTOR SHALL CINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3" CLEARANCE. THE TIES SHALL BE PLACED AT A MAXIMUM OF 4" FROM THE BOTTOM OF THE BAG.

INLET PROTECTION
TYPE A, B, C, AND D

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
10/16/02
DATE
/S/ Beth Cannestra
CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

6
S.D.D. 8 E 10-2



PLAN VIEW

SECTION B-B

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

TRACKING PAD SHALL BE INSPECTED DAILY. DEFICIENT AREAS SHALL BE REPAIRED OR REPLACED IMMEDIATELY.

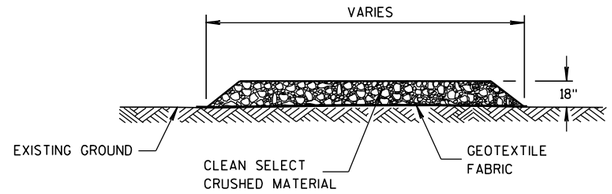
TRACKING PAD TO BE REMOVED AFTER CONSTRUCTION IS COMPLETED.

TRACKING PAD SHALL BE THE FULL WIDTH OF THE EGRESS POINT.

SURFACE WATER MUST BE PREVENTED FROM PASSING THROUGH THE TRACKING PAD. FLOWS SHALL BE DIVERTED AWAY, AROUND OR CONVEYED UNDER THE TRACKING PAD.

CULVERT PIPE OR OTHER BMP USED TO DIVERT WATER AWAY, AROUND OR UNDER THE TRACKING PAD SHALL BE DESIGNED TO CONVEY THE 2 YEAR - 24 HOUR EVENT.

THE COST OF ADDITIONAL BMP TO DIVERT WATER ARE INCIDENTAL TO THE TRACKING PAD BID ITEM.



SECTION A-A

TRACKING PAD

TRACKING PAD	
STATE OF WISCONSIN DEPARTMENT OF TRANSPORTATION	
APPROVED 3/24/2011 DATE FHWA	/S/ Jerry H. Zoda ROADWAY STANDARDS ENGINEER
	30
	ENT

6

S.D.D. 8 E 14-1

6

S.D.D. 8 E 14-1

METAL APRON ENDWALLS

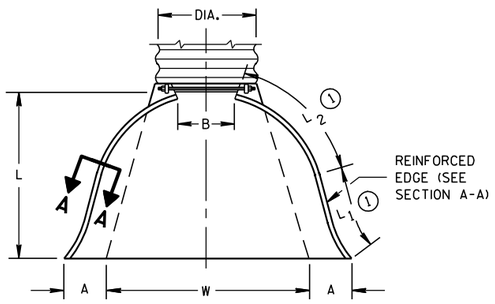
PIPE DIA. (IN.)	MIN. THICK. (Inches) STEEL	MIN. THICK. (Inches) ALUM.	DIMENSIONS (Inches) A (±1")	B (MAX.)	H (±1")	L (±1 1/2")	L1 ①	L2 ①	W (±2")	APPROX. SLOPE	BODY
12	.064	.060	6	6	6	21	12	17 1/2	24	2 1/2 to 1	1 Pc.
15	.064	.060	7	8	6	26	14	21 3/4	30	2 1/2 to 1	1 Pc.
18	.064	.060	8	10	6	31	15	28 1/4	36	2 1/2 to 1	1 Pc.
21	.064	.060	9	12	6	36	18	29 5/8	42	2 1/2 to 1	1 Pc.
24	.064	.075	10	13	6	41	18	37 1/4	48	2 1/2 to 1	1 Pc.
30	.079	.075	12	16	8	51	18	52 1/4	60	2 1/2 to 1	1 Pc.
36	.079	.105	14	19	9	60	24	59 3/4	72	2 1/2 to 1	2 Pc.
42	.109	.105	16	22	11	69	24	75 5/8	84	2 1/2 to 1	2 Pc.
48	.109	.105	18	27	12	78	24	81	90	2 1/4 to 1	3 Pc.
54	.109	.105	18	30	12	84	30	85 1/2	102	2 1/4 to 1	3 Pc.
60	.109×	.105×	18	33	12	87	—	—	114	2 to 1	3 Pc.
66	.109×	.105×	18	36	12	87	—	—	120	2 to 1	3 Pc.
72	.109×	.105×	18	39	12	87	—	—	126	2 to 1	3 Pc.
78	.109×	.105×	18	42	12	87	—	—	132	1 1/2 to 1	3 Pc.
84	.109×	.105×	18	45	12	87	—	—	138	1 1/2 to 1	3 Pc.
90	.109×	.105×	18	37	12	87	—	—	144	1 1/2 to 1	3 Pc.
96	.109×	.105×	18	35	12	87	—	—	150	1 1/2 to 1	3 Pc.

× EXCEPT CENTER PANEL SEE GENERAL NOTES

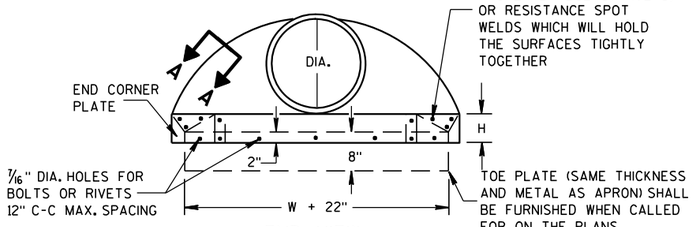
REINFORCED CONCRETE APRON ENDWALLS

PIPE DIA. (IN.)	DIMENSIONS (Inches) T	A	B	C	D	E	G	APPROX. SLOPE
12	2	4	24	48 7/8	72 1/8	24	2	3 to 1
15	2 1/4	6	27	46	73	30	2 1/4	3 to 1
18	2 1/2	9	27	46	73	36	2 1/2	3 to 1
21	2 3/4	9	36	37 1/2	73 1/2	42	2 3/4	3 to 1
24	3	9 1/2	43 1/2	30	73 1/2	48	3	3 to 1
27	3 1/4	10 1/2	49 1/2	24	73 1/2	54	3 1/4	3 to 1
30	3 1/2	12	54	19 3/4	73 1/2	60	3 1/2	3 to 1
36	4	15	63	34 3/4	97 3/4	72	4	3 to 1
42	4 1/2	21	63	35	98	78	4 1/2	3 to 1
48	5	24	72	26	98	84	5	3 to 1
54	5 1/2	27	65	* 33 1/4 - ** 35	* 98 1/4 - ** 100	90	5 1/2	2 2/5 to 1
60	6	* 30 - ** 35	60	39	99	96	5	2 to 1
66	6 1/2	* 24 - ** 30	* 72 - ** 78	* 21 - ** 27	99	102	5 1/2	2 to 1
72	7	* 24 - ** 36	78	21	99	108	6	2 to 1
78	7 1/2	* 24 - ** 36	78	21	99	114	6 1/2	2 to 1
84	8	36	90 1/2	21	111 1/2	120	6 1/2	1 1/2 to 1
90	8 1/2	41	87 1/2	24	111 1/2	132	6 1/2	1 1/2 to 1

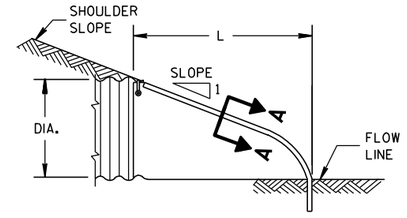
*MINIMUM
**MAXIMUM



PLAN VIEW

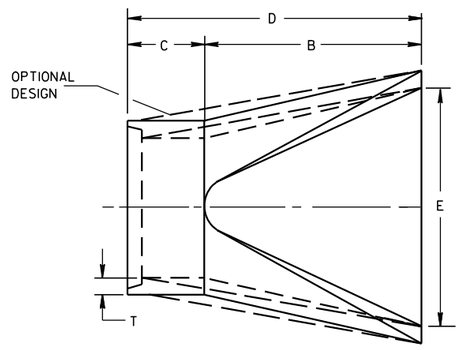


END VIEW

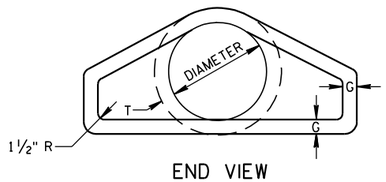


SIDE ELEVATION

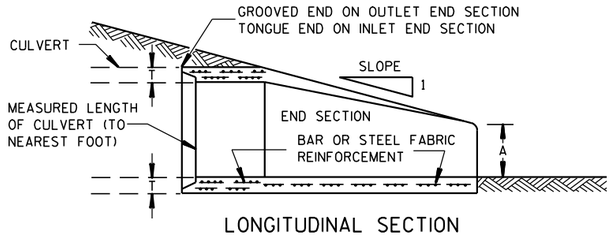
METAL ENDWALLS



PLAN

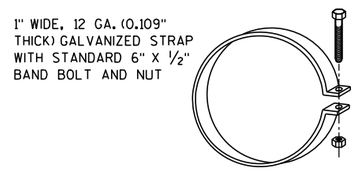


END VIEW



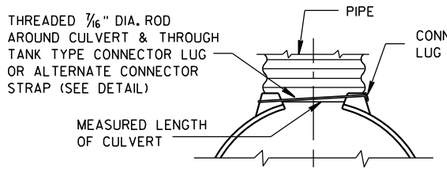
LONGITUDINAL SECTION

CONCRETE ENDWALLS

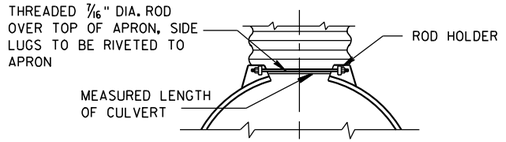


ALTERNATE FOR TYPE 1 CONNECTION

END SECTION CONNECTOR STRAP

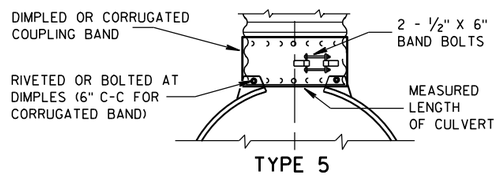


TYPE 1
FOR 12" THRU 24" CORR. PIPE



TYPE 2
FOR 30" THRU 96" CORR. PIPE

TYPE 3
FOR 42" THRU 96" CORR. PIPE



TYPE 5
ALTERNATE FOR:
ALL SIZES CORRUGATED CIRCULAR PIPE

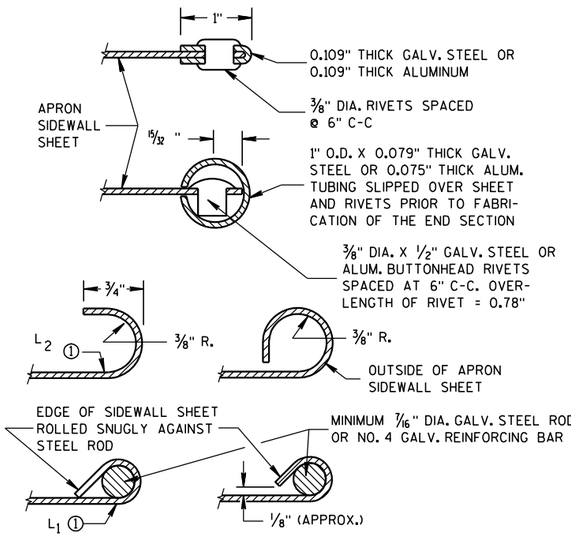
NOTE: DIMPLED BAND FITS OVER OUTSIDE OF ENDWALL. AND CORRUGATED BAND FITS INSIDE ENDWALL. DIMPLED BAND MAY BE USED WITH HELICALLY CORRUGATED PIPE.

FOR CIRCUMFERENTIALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2, 3 OR 5 AS APPLICABLE.

FOR HELICALLY CORRUGATED PIPE USE ENDWALL CONNECTION DETAILS 1, 2 OR 5.

FOR HELICALLY CORRUGATED PIPES WITH TWO CIRCUMFERENTIAL CORRUGATIONS AT EACH END USE ENDWALL CONNECTION DETAILS 1, 2 OR 3.

CONNECTION DETAILS



SECTION A-A

GENERAL NOTES

DETAILS OF CONSTRUCTION, MATERIALS AND WORKMANSHIP NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

CONCRETE CULVERT ENDWALLS MAY NOT BE USED WITH GALVANIZED STEEL OR ALUMINUM CULVERT PIPE OR VISE VERSA. GALVANIZED STEEL OR ALUMINUM ENDWALLS SHALL NORMALLY BE INSTALLED ON CULVERT PIPE OF THE SAME METAL.

ALL THREE PIECE STEEL APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.109" SIDES AND 0.138" CENTER PANELS. ALL THREE PIECE ALUMINUM APRON ENDWALLS FOR 60" DIAMETER PIPE AND LARGER SHALL HAVE 0.105" SIDES AND 0.134" CENTER PANELS. THE WIDTH OF CENTER PANELS SHALL BE GREATER THAN 20 PERCENT OF THE PIPE PERIMETER.

LAP SEAMS SHALL BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS FOR STEEL UNITS AND ALUMINUM RIVETS AND BOLTS FOR ALUMINUM UNITS. FOR THE 60" THROUGH 96" DIAMETER APRON ENDWALL SIZES, THE REINFORCED EDGES AND CENTER PANEL SEAMS SHALL BE FURTHER REINFORCED WITH GALVANIZED STEEL OR ALUMINUM STIFFENER ANGLES. THE ANGLES SHALL BE ATTACHED BY GALVANIZED NUTS AND BOLTS FOR STEEL UNITS AND ALUMINUM NUTS AND BOLTS FOR ALUMINUM UNITS.

WHERE TWO OR MORE PIPES WITH APRON ENDWALLS ARE LAID ADJACENT TO EACH OTHER, THEY SHALL BE SEPARATED BY A DISTANCE SUFFICIENT TO PROVIDE A MINIMUM CLEARANCE OF 6 INCHES BETWEEN APRON ENDWALLS.

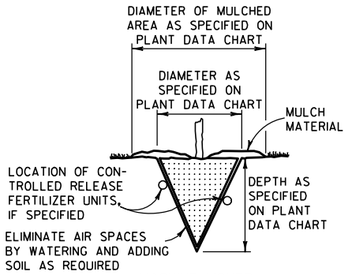
① FOR PIPE SIZES UP TO 60" DIAMETER, A 180° ROLLED EDGE MAY BE USED INSTEAD OF STEEL ROD REINFORCEMENT. SEE SECTION A-A.

APRON ENDWALLS FOR CULVERT PIPE

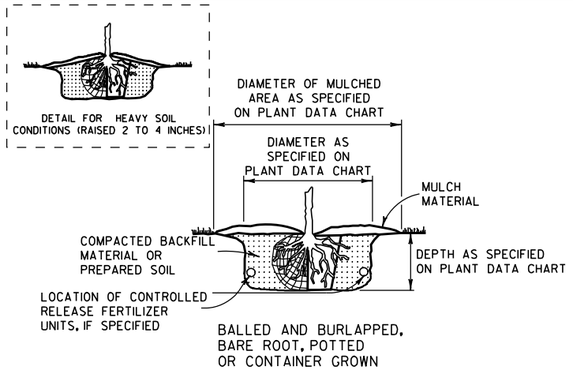
STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
11/30/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF ROADWAY DEVELOPMENT ENGINEER
FHWA

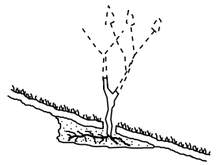
6
S.D.D. 8 F 1-11



MACHINE MOVED

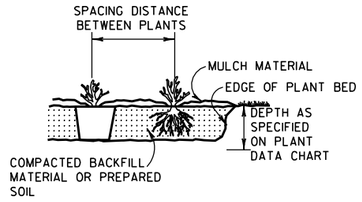


BALLED AND BURLAPPED, BARE ROOT, POTTED OR CONTAINER GROWN



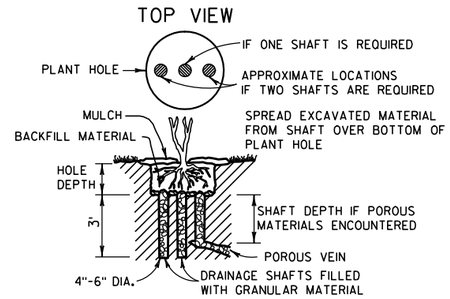
ACCOMMODATE ROOTS (SMOOTH AND STAGHORN SUMAC)

NOTE:
1) ENGINEER SHALL REQUIRE 3 SLITS IN POT TO SPEED DETERIORATION
2) METAL, PLASTIC OR OTHER NONDEGRADABLE POTS SHALL BE REMOVED PRIOR TO PLANTING



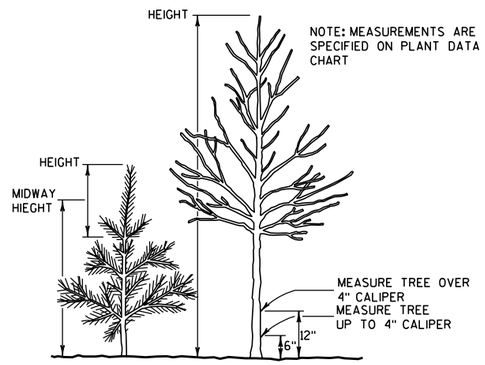
PREPARED BED (BARE ROOT AND POTTED)

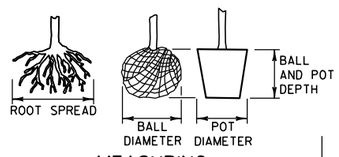
PLANTING



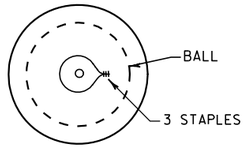
NOTE:
DRAINAGE SHAFT AS SPECIFIED ON PLANT DATA CHART

DRAINING

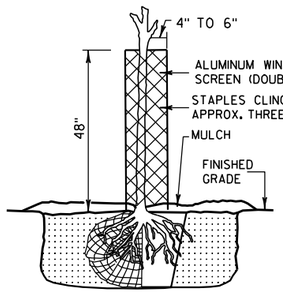




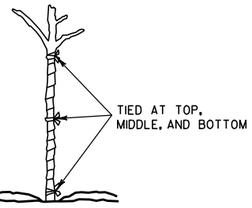
MEASURING



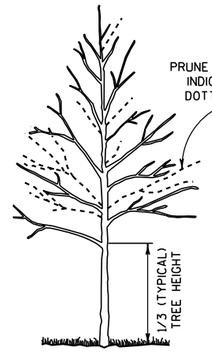
TOP VIEW



RODENT PROTECTION



WRAPPING



TALL DECIDUOUS TREES (ASH, MAPLE, LINDEN, OAK)

SINGLE STEMMED LOW DECIDUOUS TREES (CRABS AND OTHER SINGLE STEM TYPE)

MULTI-STEMMED LOW DECIDUOUS TREES OR LARGE SHRUBS (HAWTHORN, SERVICEBERRY)

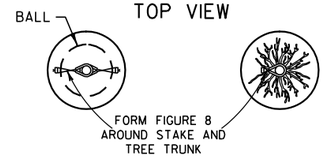
NOTE: WHEN PRUNING, PRESERVE CHARACTER AND SHAPE OF TREE. AVOID LEAVING STUBS - REMOVE BRANCH OR TWIG BACK TO THE NEAREST CROTCH
1) PRUNE TO REMOVE DEAD AND BROKEN BRANCHES
2) PRUNE TO REMOVE BRANCHES THAT TOUCH OR ARE TOO CLOSE TO OTHER BRANCHES

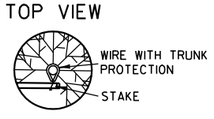
SHRUBS (GRAY DOGWOOD ARROWWOOD VIBURNUM)

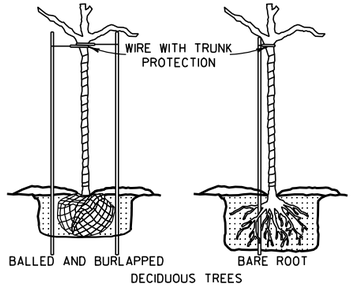
SUMAC

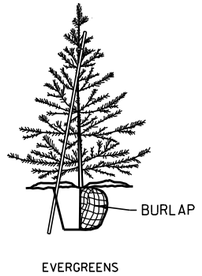
TREE TYPE EVERGREENS (PINE, SPRUCE, FIR) EVERGREENS USUALLY ARE NOT PRUNED

PRUNING



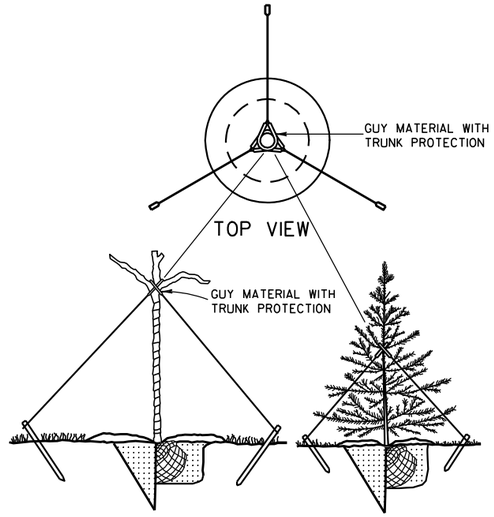






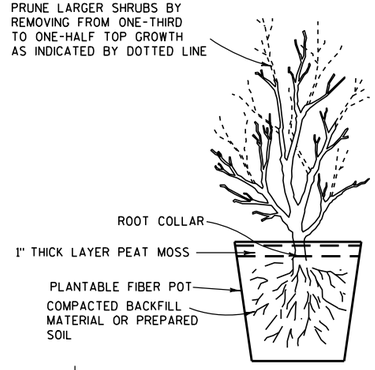
NOTE: BRACING STAKE
1) SHALL BE DRIVEN INTO THE GROUND AS CLOSE TO THE TREE AS POSSIBLE WITHOUT DAMAGING THE BRANCHES.
2) MAY BE DRIVEN AT SUCH AN ANGLE THAT IT DOES NOT PENETRATE THE BALL OR POT.
3) SHALL NOT PROTRUDE ABOVE THE TOP OF THE TREE; AND
4) SHALL HAVE A HOLE NEAR THE TOP TO HOLD THE WIRE IN PLACE.

BRACING



GUYING

PRUNE LARGER SHRUBS BY REMOVING FROM ONE-THIRD TO ONE-HALF TOP GROWTH AS INDICATED BY DOTTED LINE



POTTING

NOTES

DETAILS OF CONSTRUCTION NOT SHOWN ON THIS DRAWING SHALL CONFORM TO THE PERTINENT REQUIREMENTS OF THE STANDARD SPECIFICATIONS AND THE APPLICABLE SPECIAL PROVISIONS.

BRACING, WRAPPING, GUYING, RODENT PROTECTION, FERTILIZER AND MULCH SHALL BE USED ONLY WHEN SPECIFIED ON THE PLANT DATA CHART (PART OF PLAN) OR SPECIAL PROVISIONS.

TREE PLANTING DETAIL

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

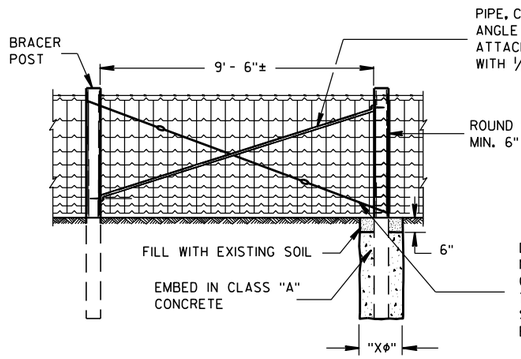
APPROVED
4/11/94 — DATE
/S/ Rory L. Rhinesmith — CHIEF METHODS DEVELOPMENT ENGINEER
FHWA

6

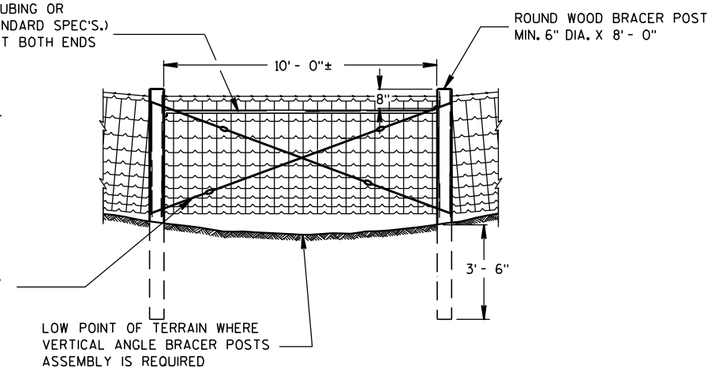
S.D.D. 14 A 2-1

NOTE: PULL OR STRETCHER POST ASSEMBLIES SHALL BE PLACED MIDWAY BETWEEN END POSTS AND CORNER POSTS WHERE A RUN OF FENCE EXCEEDS 660' BUT IS LESS THAN 1,320'. FOR RUNS OF FENCE IN EXCESS OF 1,320' MAXIMUM SPACING OF PULL OR STRETCHER POST ASSEMBLIES SHALL BE 660'± C-C.

ILLUSTRATION SHOWS POSITION OF STANDARD STEEL BRACE, DOUBLE STRAND GALVANIZED WIRE, AND THE POST TO BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM LEFT TO RIGHT. THE BRACES SHALL BE POSITIONED ON THE OPPOSITE DIAGONALS AND THE OPPOSITE POST SHALL BE EMBEDDED IN CONCRETE WHEN WIRE FENCE IS INSTALLED FROM RIGHT TO LEFT.



PULL OR STRETCHER POSTS ASSEMBLY



VERTICAL ANGLE BRACER POSTS ASSEMBLY

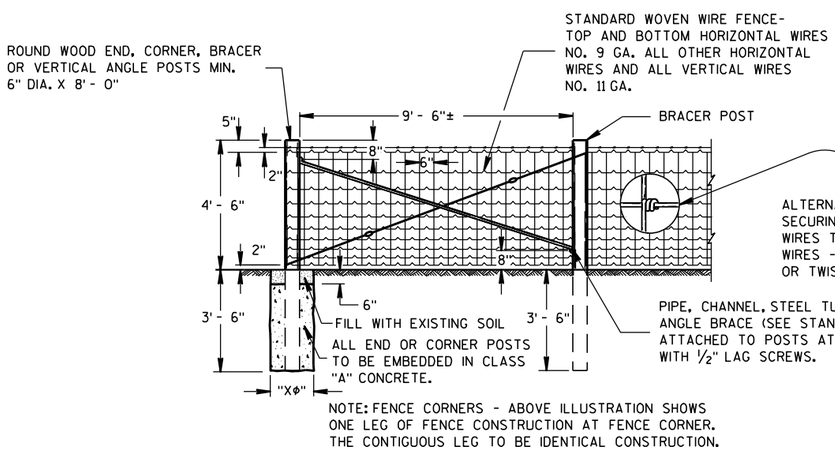
GENERAL NOTES

"XØ" = DIAMETER OF THE POST PLUS 12".

FENCE STAPLES SHOULD NEVER BE DRIVEN VERTICALLY INTO WOOD POSTS (WITH BOTH LEGS PARALLEL WITH THE WOOD GRAIN). DOING SO CAN SEPARATE THE GRAIN AND SIGNIFICANTLY REDUCE THE HOLDING POWER. ROTATING THE STAPLES SLIGHTLY OFF VERTICAL STRADDLES THE GRAIN AND PROVIDES MORE RESISTANCE TO PULL-OUT.

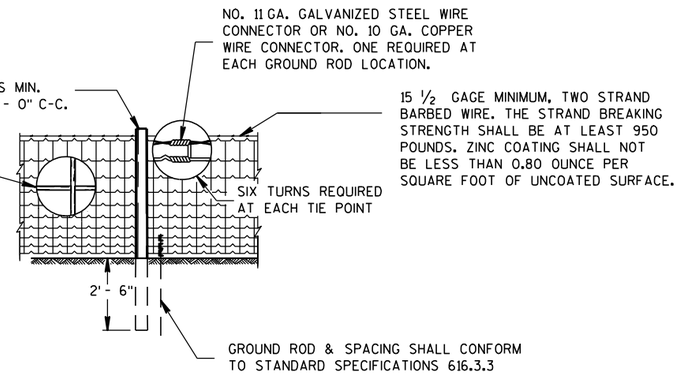
DO NOT STAPLE WIRE TIGHT TO THE LINE POSTS. ALLOW MOVEMENT OF WIRE FOR EXPANSION AND CONTRACTION. STAPLE ARRANGEMENT SHALL BE THE SAME FOR ALL OTHER POSTS EXCEPT THAT THEY SHALL BE DRIVEN TIGHT TO POSTS. ALL STAPLES SHALL BE 2" X 9 GAGE AND SHALL BE MANUFACTURED FROM GALVANIZED WIRE OR HOT DIP GALVANIZED AFTER FORMING. STAPLES SHALL HAVE SLASH-CUT POINTS.

FENCE SHALL BE LOCATED 3'-0" INSIDE THE RIGHT OF WAY LINE UNLESS OTHERWISE INDICATED ON THE PLANS.



NOTE: FENCE CORNERS - ABOVE ILLUSTRATION SHOWS ONE LEG OF FENCE CONSTRUCTION AT FENCE CORNER. THE CONTIGUOUS LEG TO BE IDENTICAL CONSTRUCTION.

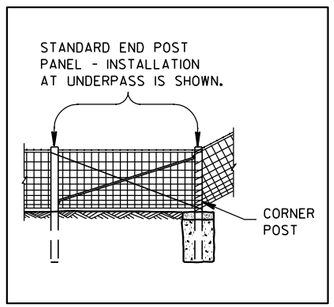
END OR CORNER POSTS ASSEMBLY



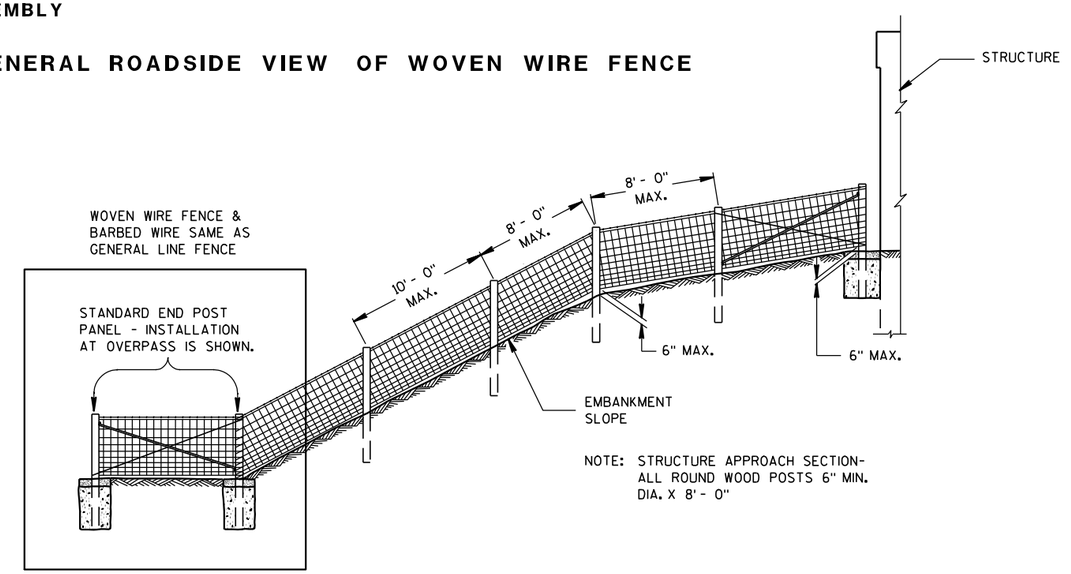
ALTERNATE METHODS OF SECURING VERTICAL STAY WIRES TO HORIZONTAL WIRES - SECURELY WELDED OR TWISTED.

LINE FENCE CONSTRUCTION

GENERAL ROADSIDE VIEW OF WOVEN WIRE FENCE



ALTERNATE FENCE DESIGN AT STRUCTURE



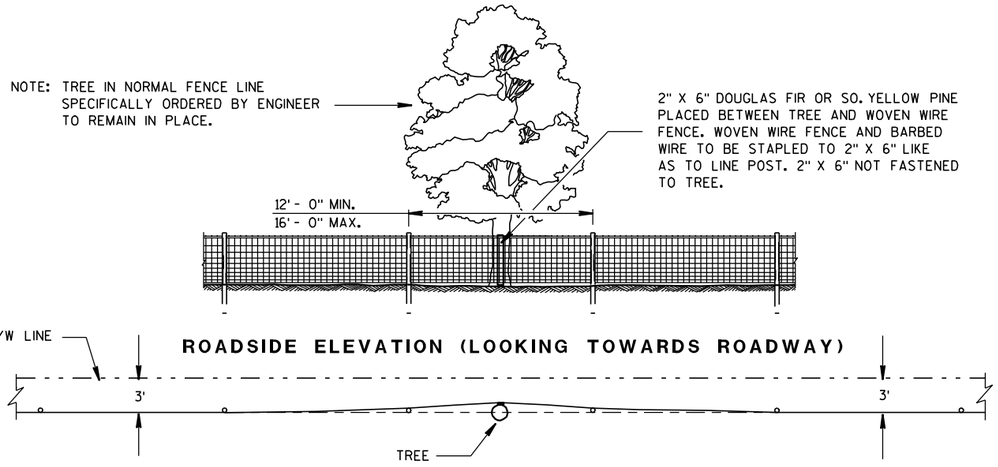
FENCE DESIGN AT STRUCTURE APPROACH

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

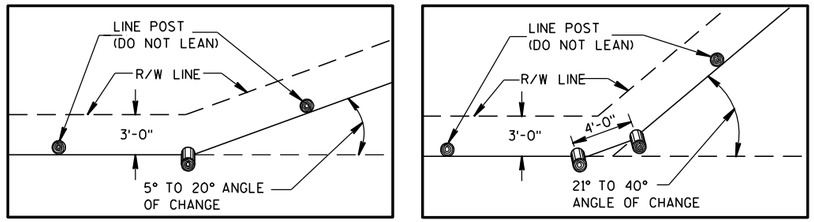
6

S.D.D. 15 B 1-8a



PLAN VIEW

FENCE DESIGN AT TREES REMAINING IN NORMAL FENCE LINE



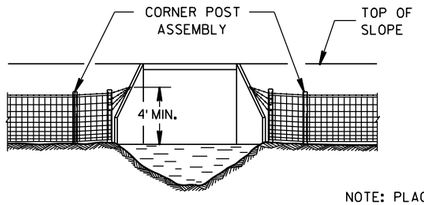
PLAN VIEW
SINGLE POST CORNER

PLAN VIEW
DOUBLE POST CORNER

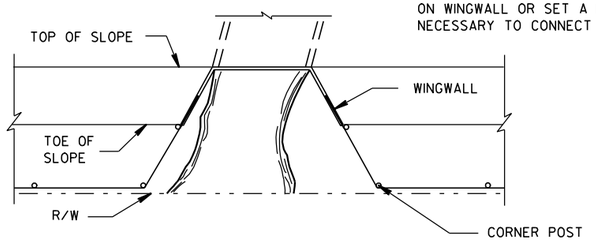
RIGHT OF WAY LINE CHANGE 40° AND LESS

NOTE: SINGLE AND DOUBLE POSTS SHALL BE A MIN. 6" DIA. X 8'-0" WITH A LEAN OF 4" TOWARD THE OUTSIDE OF THE CURVE.

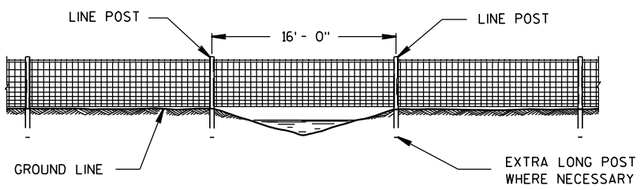
WHEN THE RIGHT OF WAY LINE CHANGE IS MORE THAN 40° USE THE CORNER OR STRETCHER POSTS ASSEMBLY.



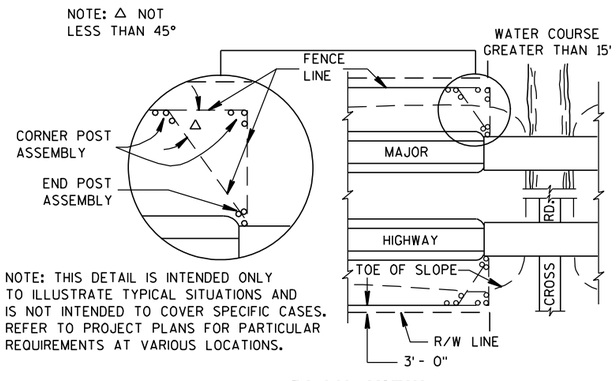
NOTE: PLACE A MINIMUM OF 4 STRANDS OF BARBED WIRE, 6" MAXIMUM CENTERS IN FAN SHAPE CONNECTED TO AN EYE BOLT ON WINGWALL OR SET A LONE POST WHEN NECESSARY TO CONNECT BARBED WIRE.



FENCE INSTALLATION TO WINGWALLS

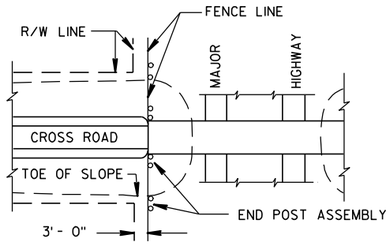


FENCE CONSTRUCTION OVER STREAM COURSES OF 15 FT. OR LESS IN WIDTH



PLAN VIEW

MAJOR HIGHWAY OVERPASS OR STREAM COURSE CROSSING OF GREATER THAN 15 FT. IN WIDTH

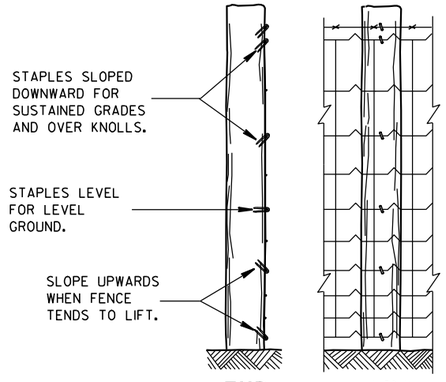


PLAN VIEW

MAJOR HIGHWAY UNDERPASS

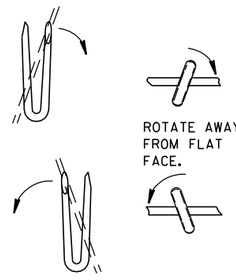
FENCE LOCATION AT STRUCTURES

NOTE: WHEN POSTS ARE DRIVEN THE SMALL END SHALL BE DOWN.



END ELEVATION **FARM SIDE ELEVATION**

FENCE MOUNTING DETAIL



LINE POST

FENCE WOVEN WIRE

STATE OF WISCONSIN
DEPARTMENT OF TRANSPORTATION

APPROVED
4/4/2008
DATE
/S/ Jerry H. Zorn
ROADWAY STANDARDS ENGINEER
FHWA

6

S.D.D. 15 B 1-8b

Notes

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