SEE SHEET #33 FOR MAIN PARKING LOT IMPROVEMENTS

NOTES:
ALL 5" PVC SCHEDULE 40 CONDUITS FOR PRIMARY SERVICE SHALL BE A MINIMUM OF 24" BELOW ALL CULVERTS.

ALL WATER SERVICES SHALL BE INSTALLED WITH TRACER WIRE AND SHALL BE A MINIMUM 5.50' DEEP.

ALL SITE CIVIL UTILITIES SHALL END 5' OUTSIDE OF BUILDING FACE

PROPOSED CONTOUR (TYPICAL)

(1) 5" PVC SCHEDULE 40 CONDUITS 36" BELOW GRADE FOR PRIMARY SERVICE. (315')

COMED SPLICE BOX

(1) 5" PVC SCHEDULE 40 CONDUITS 36" BELOW GRADE FOR PRIMARY SERVICE. (153')

PROPOSED GRADE (TYPICAL)

EXISTING ELECTRIC & WATER LINE ALREADY ABANDONED IN PLACE (CONTRACTOR TO FIELD VERIFY)

SEE SHEET #55 & 56 FOR SEPTIC SYSTEM IMPROVEMENTS

COMED SPLICE BOX

ELECTRIC SERVICE TO AEROBIC TREATMENT UNIT

PROPOSED CLEANOUT

(1) 5" PVC SCHEDULE 40 CONDUIT 36" BELOW GRADE FOR PRIMARY SERVICE. (53')

NEW PAD MOUNTED TRANSFORMER FOR TAYLOR LAKE SHELTER. FIELD VERIFY EXACT LOCATION AND REQUIREMENTS WITH COMED.

DIRECTIONAL DRILLING 36' - ELECTRIC SERVICE TO WELL

PROPOSED WELL

DIRECTIONAL DRILLING 36' - 1 1/4" WATER SERVICE

DIRECTIONAL DRILLING 26' - 1 1/4" WATER SERVICE & 2" WATER SERVICE

BORE PIT

2" WATER SERVICE LINE & SELF-ALIGNING B-BOX

Added silt fence per SMC comments

SEE SHEET L1.4 FOR LAYOUT & MATERIALS PLAN-MAIN PARKING

EXISTING ELECTRIC LINE ALREADY ABANDONED IN PLACE (CONTRACTOR TO FIELD VERIFY)

39'-4"PVC PIPE DRAIN @1.0%

5'MH (DRINKING FOUNTAIN VAULT) R-843.25 4"INV. 841.25

SELF-ALIGNING B-BOX

2" WATER SERVICE LINE TO WATER FIXTURE

DIRECTIONAL DRILLING 65' - WATER SERVICE TO AVOID EXISTING TREES.

DIRECTIONAL DRILLING 44' - WATER SERVICE TO AVOID EXISTING TREES.

TEMPORARY CONSTRUCTION FENCE (TYPICAL)

EXISTING ONSITE TOPOGRAPHY (TYPICAL)

BORE PIT

DIRECTIONAL DRILLING 60' - WATER SERVICE TO AVOID EXISTING TREES.

EXISTING WATER LINE ALREADY ABANDONED IN PLACE (CONTRACTOR TO FIELD VERIFY)

NORTH

SCALE: 1" = 20' (24" x 36")
SCALE: 1" = 40' (11" x 17")

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
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LIBERTYVILLE, ILLINOIS 60048
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DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

DESCRIPTION	DATE	BY

REVISIONS

TAYLOR LAKE SHELTER
SITE IMPROVEMENTS

SHEET NUMBER
40
OF 56 SHEETS

JOB No. 2036

MAINTAIN AND PROTECT EXISTING ELECTRIC

MAINTAIN AND PROTECT EXISTING COMED

EXISTING BAT HOUSE

EXISTING SHELTER

MAINTAIN AND PROTECT EXISTING ELECTRIC

EXISTING ELECTRIC OUTLETS & WATER SPIGOT TO REMAIN

ELECTRIC OUTLETS

WATER SPIGOT

TRANSFORMER PAD

B-103

B-102

B-109

B-104

B-110

T-2

P-1

P-2

P-3

P-4

P-5

S-1

S-2

S-6

NORTH

40' 20' 0 40'

SCALE: 1" = 40' (24" x 36")

SCALE: 1" = 80' (11" x 17")

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

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REVISIONS

WEST UTILITIES

SHEET NUMBER

41

OF 56 SHEETS

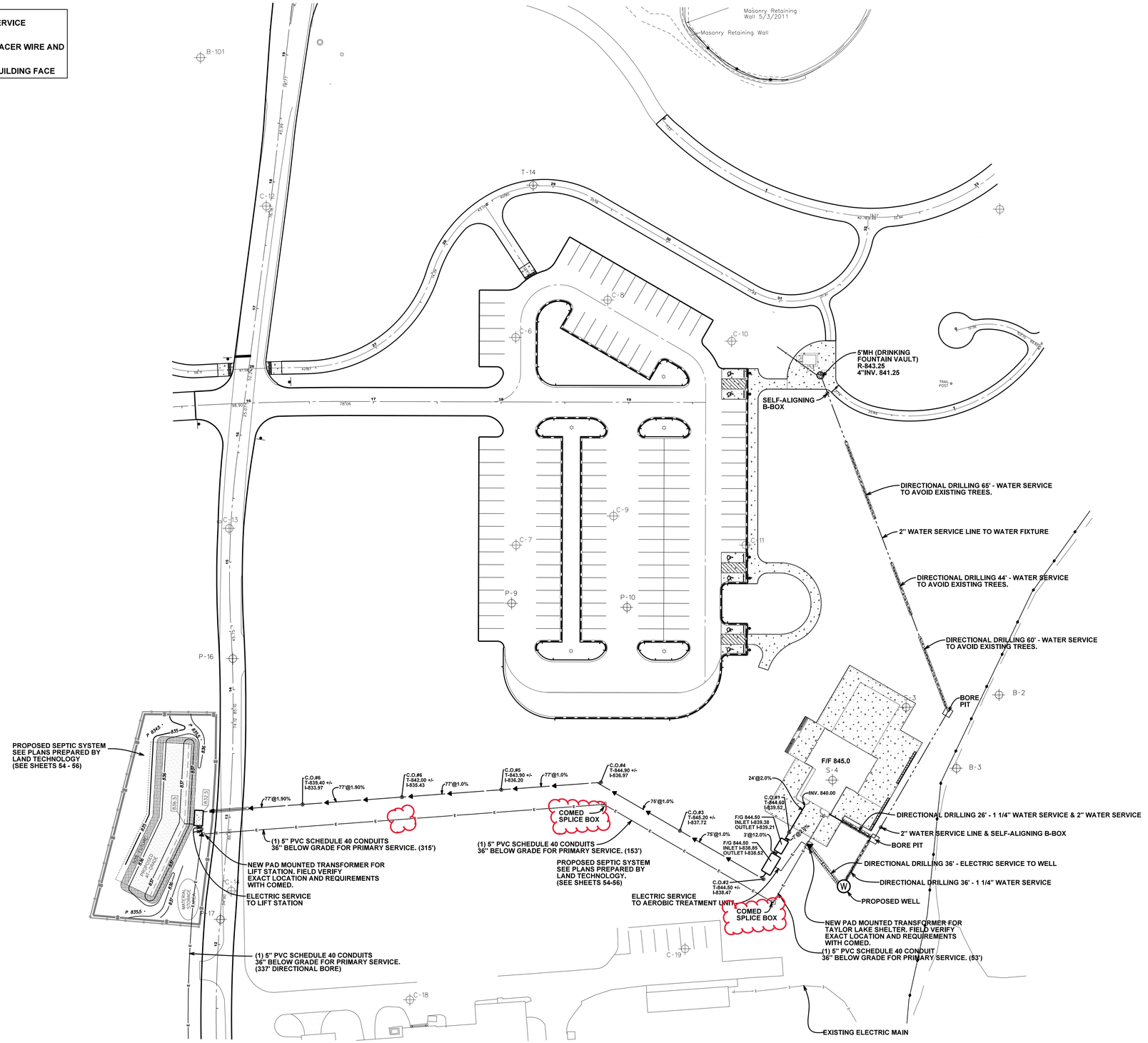
JOB No. 2036

STONE WALL

NOTES:
ALL 5" PVC SCHEDULE 40 CONDUITS FOR PRIMARY SERVICE SHALL BE A MINIMUM OF 24" BELOW ALL CULVERTS.

ALL WATER SERVICES SHALL BE INSTALLED WITH TRACER WIRE AND SHALL BE A MINIMUM 5.50' DEEP.

ALL SITE CIVIL UTILITIES SHALL END 5' OUTSIDE OF BUILDING FACE



LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

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SCALE: 1" = 40' (24" x 36")
SCALE: 1" = 60' (11" x 17")

DESIGNED BY: D.S.H.
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CHECKED BY: A.K.Z.
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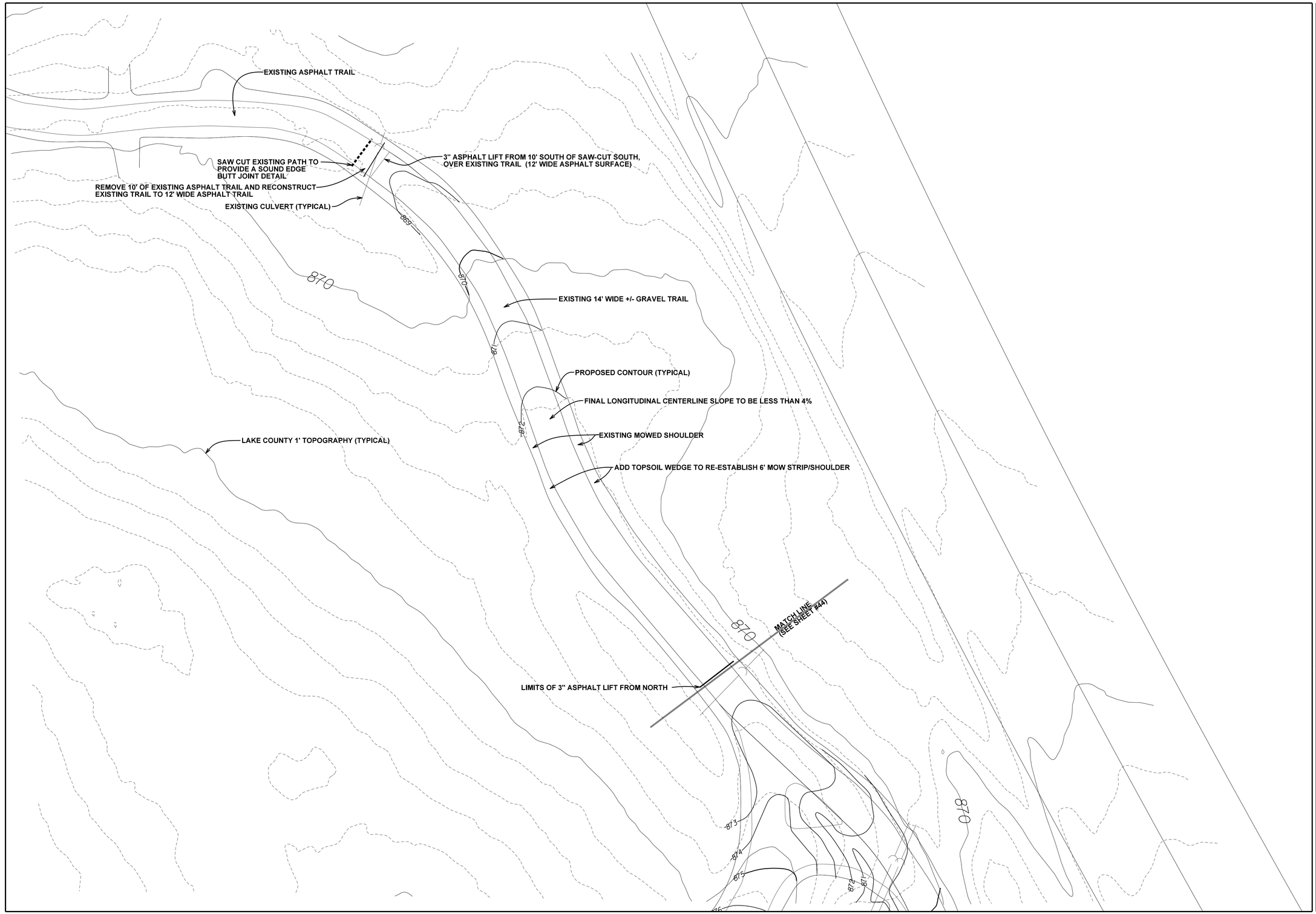
DESCRIPTION	DATE	BY

REVISIONS

EAST UTILITIES

SHEET NUMBER
42
OF 56 SHEETS

JOB No. 2036



NORTH

SCALE: 1" = 20' (24" x 36")
SCALE: 1" = 40' (11" x 17")

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

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REVISIONS

MILLENNIUM TRAIL

SHEET NUMBER

43

OF 56 SHEETS

JOB No. 2036

EXISTING CULVERT (TYPICAL)

EXISTING 14' WIDE +/- GRAVEL TRAIL

REGRADE TRAIL SOUTH FROM THIS POINT

MATCH LINE (SEE SHEET #43)

LIMITS OF EXISTING TRAIL REMOVAL

PROPOSED CONTOUR (TYPICAL)

FINAL LONGITUDINAL CENTERLINE SLOPE TO BE LESS THAN 4%

3" ASPHALT LIFT OVER REGRADED TRAIL(12' WIDE HMA SURFACE)

REGRADE TRAIL NORTH FROM THIS POINT

DO NOT DISTURB ESTABLISHED TURF SHOULDERS SOUTH OF THIS POINT TO TUNNEL. ADD TOPSOIL BETWEEN NEW ASPHALT PAVEMENT (12' WIDE) AND TURF SHOULDER TO CLOSE GAP

LIMITS OF EXISTING TRAIL REMOVAL

CONCRETE CURB

6" TOPSOIL (MIN.)

REMOVE EXISTING ASPHALT REPLACE WITH 12' WIDE ASPHALT (3" LIFT)

EXISTING AGGREGATE PATH TO BE RECYCLED / RESTORED

EXISTING MOWED SHOULDER

ADD TOPSOIL WEDGE TO RE-ESTABLISH 6' MOW STRIP/SHOULDER

SAW CUT EXISTING PATH TO PROVIDE A SOUND EDGE BUTT JOINT DETAIL

TAPER ASPHALT FROM 12' WIDE TO TUNNEL OPENING WIDTH OVER LAST 10'

LAKE COUNTY 1' TOPOGRAPHY (TYPICAL)

NORTH

SCALE: 1" = 20' (24" x 36")
SCALE: 1" = 40' (11" x 17")

LAKEWOOD FOREST PRESERVE

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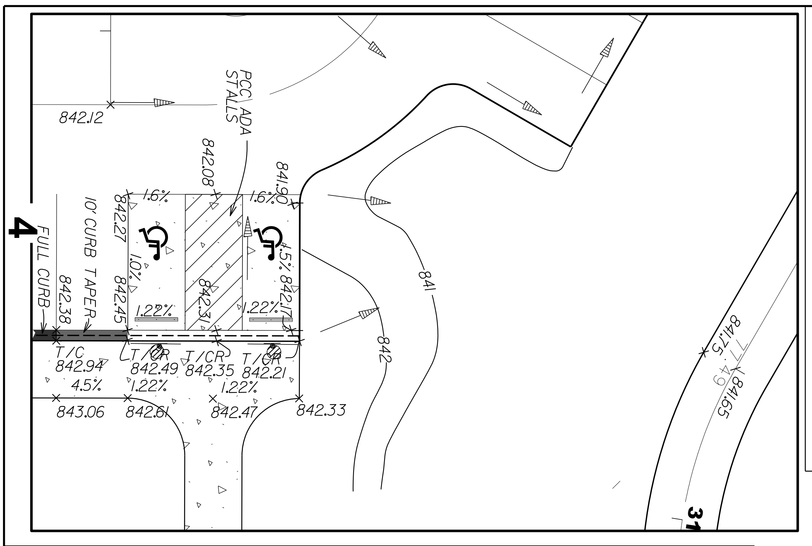
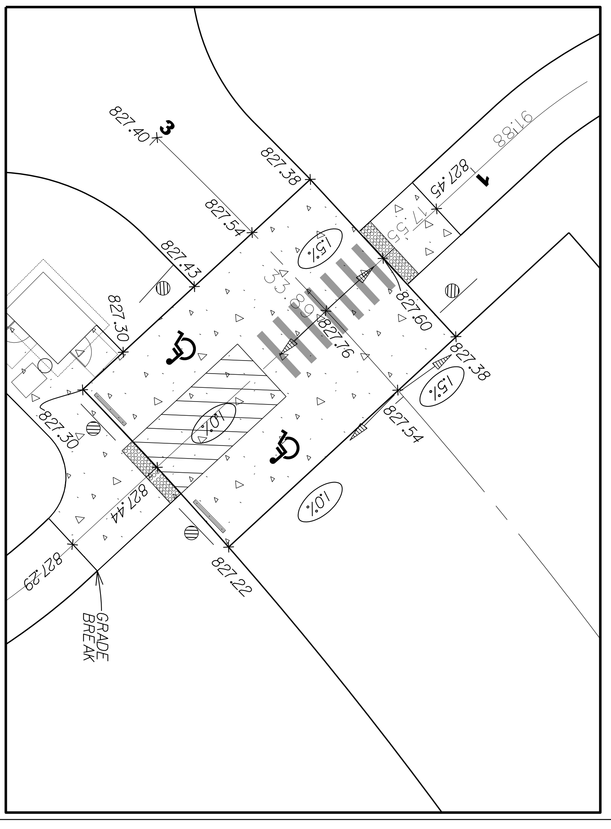
REVISIONS

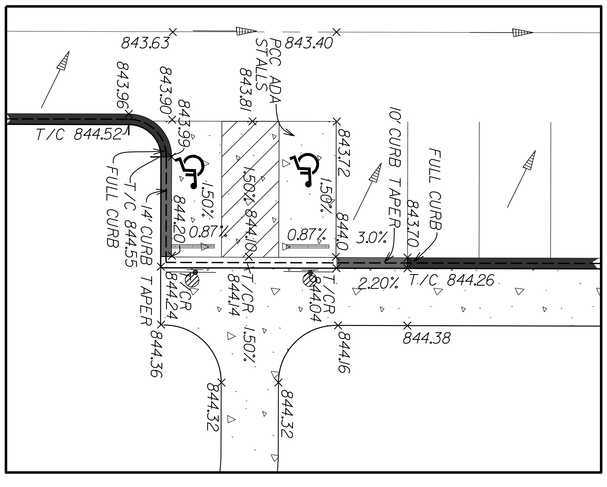
MILLENNIUM TRAIL

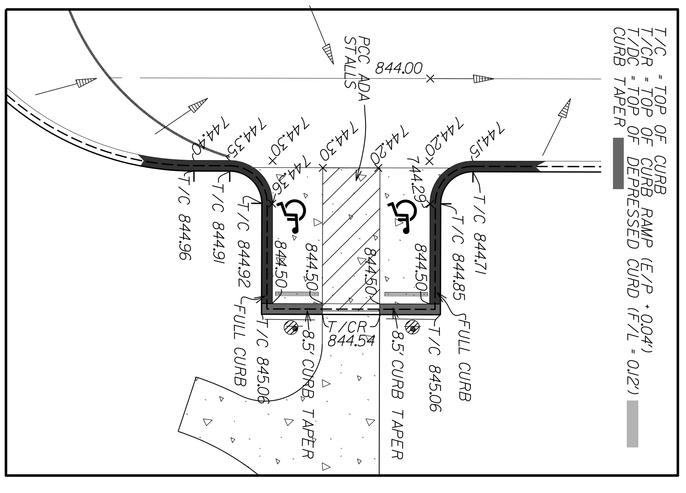
SHEET NUMBER
44
OF 56 SHEETS

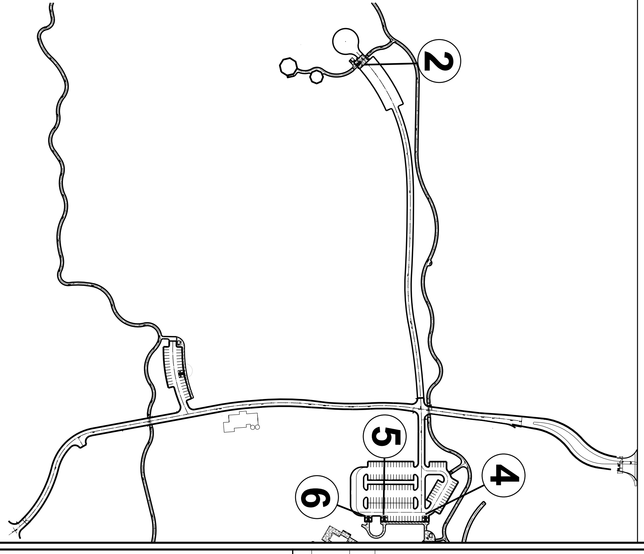
JOB No. 2038











ACCESSIBLE PARKING

SHEET NUMBER 45 OF 56 SHEETS

JOB No. 2036

REVISIONS	DATE	BY	DESCRIPTION

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

DESIGNED BY: D.S.H.
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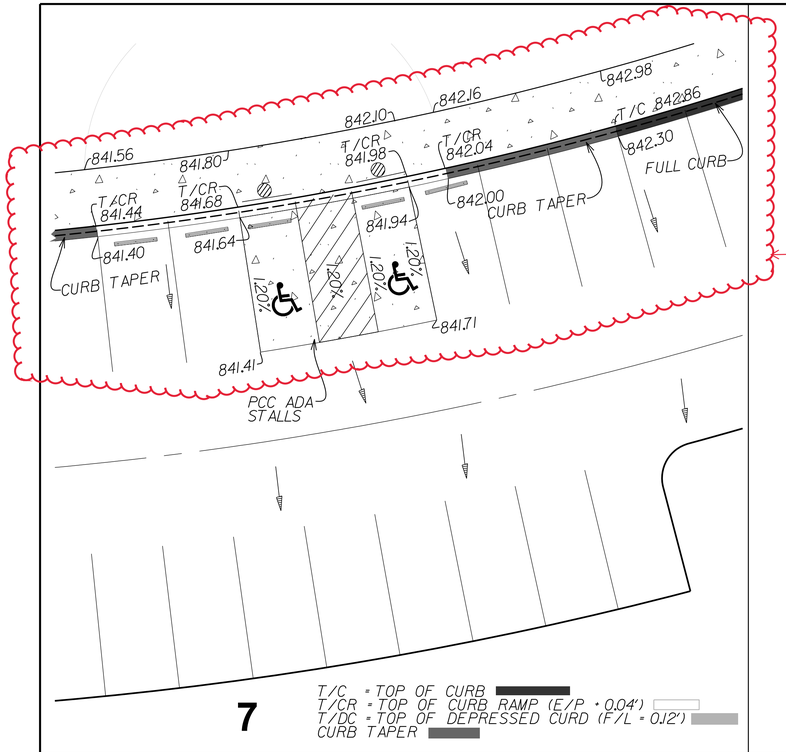
NORTH

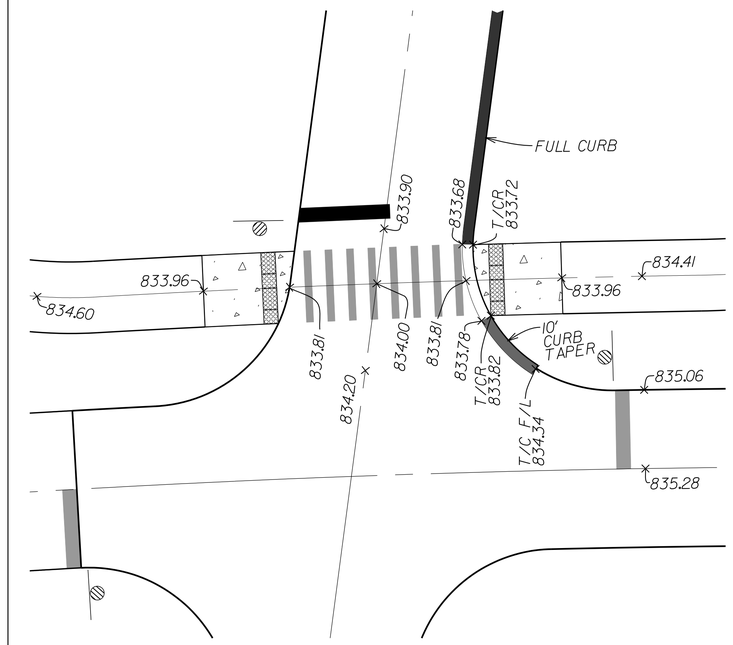
10' 5' 0 10'

SCALE: 1" = 10' (24" x 36")
SCALE: 1" = 20' (11" x 17")



7

Revise grading to accommodate future nature play improvements



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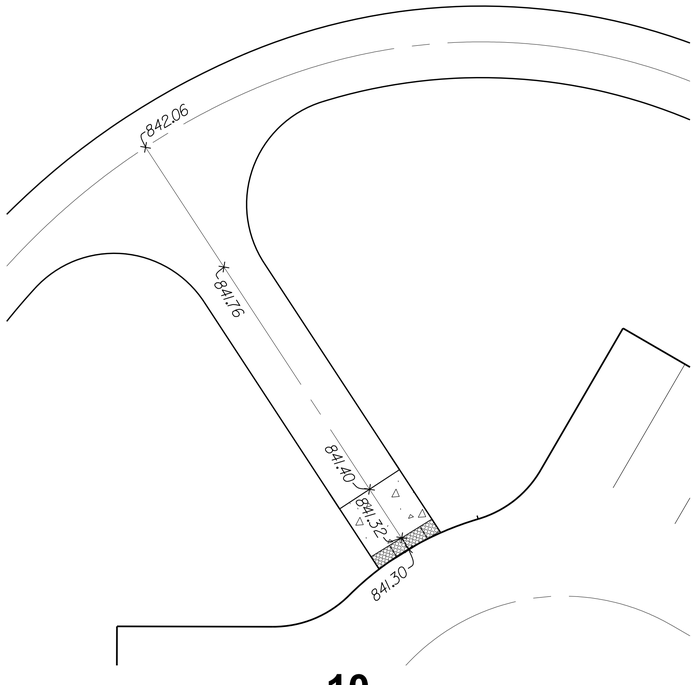

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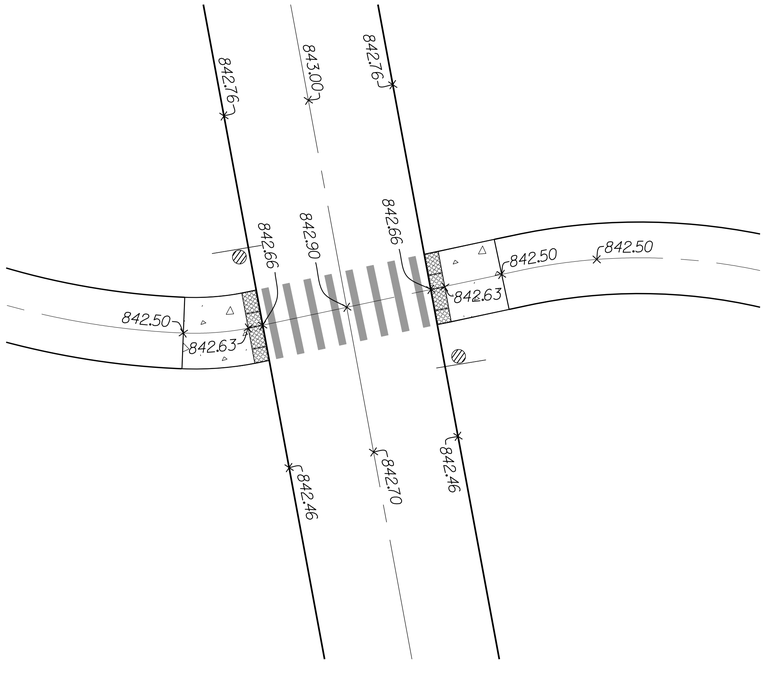

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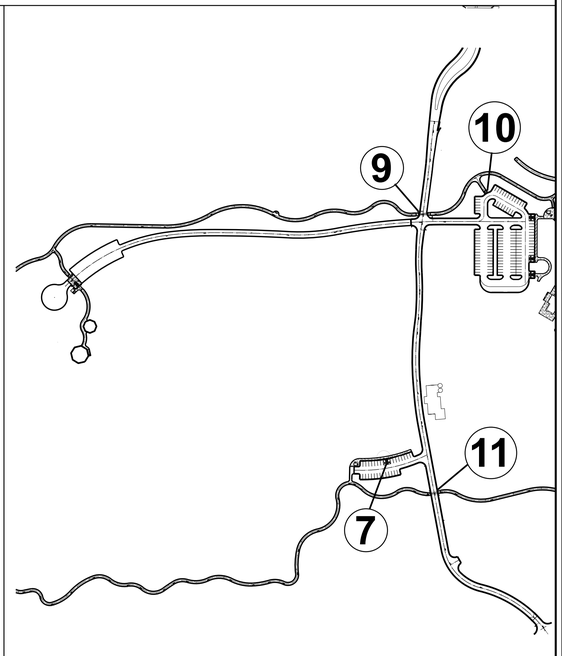

NORTH

10' 5' 0 10'

SCALE: 1" = 10' (24" x 36")
SCALE: 1" = 20' (11" x 17")

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

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ACCESSIBLE PARKING

SHEET NUMBER
46
OF 56 SHEETS

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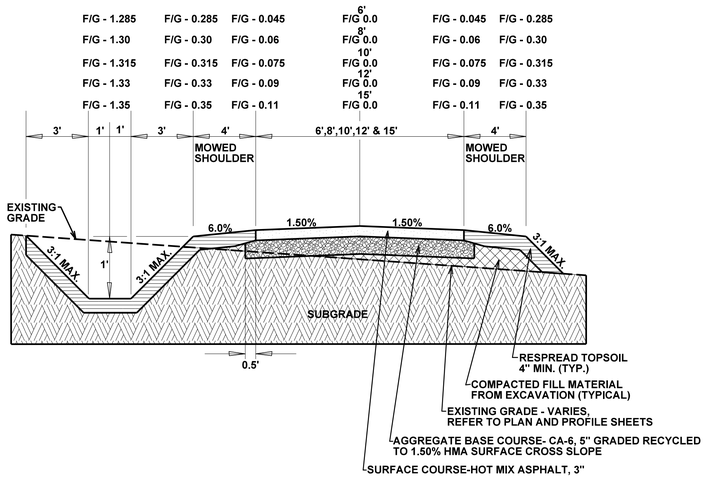


PAVED TRAIL - OPEN AREAS

NORTH TRAIL:
STATIONS 0+00 TO 2+50
4+50 TO 12+50
14+50 TO 25+73
26+23 TO 32+10

NORTH TRAIL TO WEST PARKING:
STATIONS 0+00 TO 1+08

WEST DRIVE TO NORTH TRAIL:
STATIONS 0+08 TO 0+58

WEST SIDE PARKING TO WEST DRIVE:
STATIONS 0+00 TO 1+57

NORTH TRAIL TO MAIN PARKING LOT:
STATIONS 0+00 TO 0+57

MILLENNIUM TRAIL:
STATIONS 1+00 TO 1+90
32+10 TO 39+55

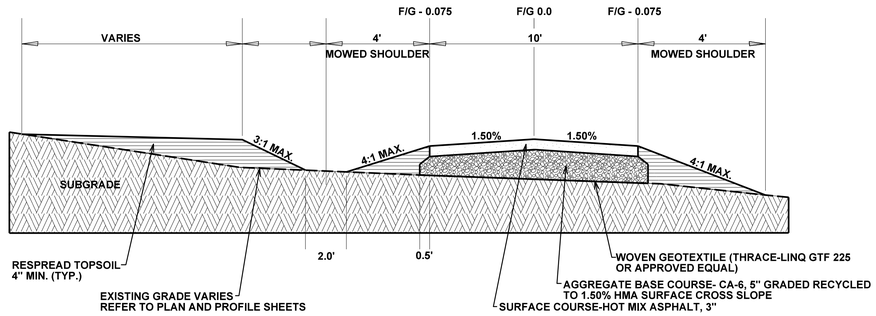
SOUTH TRAIL:
STATIONS 0+00 TO 4+00
5+50 TO 6+20
10+20 TO 25+91
26+37 TO 44+73

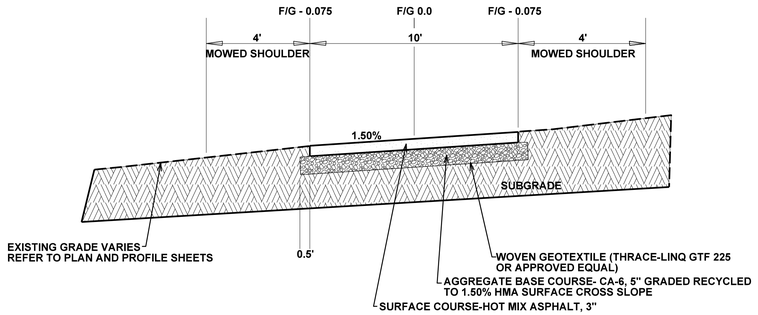
PAVED TRAIL - OPEN AREAS NOTES

1. The typical section depicted above applies to both FA-21 aggregate and hot-mix asphalt surface types. Refer to the plan and profile sheets for surfacing requirements at specific trail locations. Note the difference in cross slopes for different surface types.
2. Specific trail locations may not require the ditching shown or may require ditching on both sides of the trail. Refer to other plan sheets for ditching requirements and locations.
3. All aggregate base, aggregate surface and hot-mix asphalt surfaces shall be installed using a paving machine. Aggregate trail surfaces shall be compacted with a roller no wider than half the trail width to maintain the crowned profile.
4. The existing grade lines shown in the sections are for illustrative purposes only. Refer to the plan and profile sheets for existing and proposed elevations and cut and fill requirements along the trail length.
5. A woven geotextile for ground stabilization may be required upon direction by the owner when unsuitable soil conditions are encountered and is not shown on the section.
6. The finished topsoil grade directly adjacent to paved trail edges must be equal to or slightly (1/4") lower than the edge of trail to assure positive drainage.
7. Provide a soft gradual transition between existing and proposed grading.

LANDSCAPE NOTES

1. Mowed trail shoulders shall be seeded with LCFP Low-Maintenance mix. Refer to other plan sheets for seed mixes outside of the mowed shoulders.
2. Mowed shoulders and seeded slopes 2.5:1 or less shall be hydro-mulched. Slopes greater than 2.5:1, ditches and other concentrated flow zones shall be covered with North American Green (NAG) S75BN erosion control blanket or approved equal and with the manufacturers recommended staple pattern. Ditches typically require a minimum of two (2) rolls of blanket at 6.67' width each.





PAVED TRAIL - SENSITIVE WOODED AREAS

NORTH TRAIL:
STATIONS 2+50 TO 4+50
12+50 TO 14+50

SOUTH TRAIL:
STATIONS 4+00 TO 5+50
6+20 TO 10+20

PAVED TRAIL - SENSITIVE WOODED AREA NOTES

1. The typical section depicted above is utilized in wooded areas to reduce tree root disturbance by minimizing cut and fill grading. Preparation of the subgrade shall be limited to removal of loose surface material only to a depth generally less than three inches.
2. The construction method depicted in the section may require modification in a effort to preserve desirable trees, including relocating ditches, deleting ditches adjacent to trees, out-falling ditches perpendicular to the trail and adjusting the built dimensions. The contractor shall review tree locations and drainage issues with the owner on the site before commencing work in sensitive wooded areas.
3. Ditching for sensitive wooded areas near desirable trees shall be formed by trail elevation and soil fills and not by cutting into the existing grade.
4. Due to varations in existing grades and the required minimal ground disturbance, the depth of aggregate base for sensitive wooded areas may exceed the 5" minimum depth at the lower side of the trail to achieve the final cross slopes. These areas shall not be measured for depth in the field but shall be paid for separately as aggregate base course CA-6, 5" min., Variable depth.
5. The typical section depicted above applies to both FA-21 aggregate and hot-mix asphalt surface types. Refer to the plan and profile sheets for surfacing requirements at specific trail locations. Note the difference in cross slopes for different surface types.
6. The existing grade lines shown in the sections are for illustrative purposes only. Refer to the plan and profile sheets for existing and proposed elevations and cut and fill requirements along the trail length.
7. The finished topsoil grade directly adjacent to paved trail edges must be equal to or slightly (1/4") lower than the edge of trail to assure positive drainage.
8. Due to potential difficulties using a paving machine on the woven geotextile, aggregate base may be installed by other methods. However aggregate and hot-mix asphalt surfaces must be installed with a paver box..
9. Provide a soft gradual transition between existing and proposed grading.

LANDSCAPE NOTES

1. Mowed trail shoulders shall be seeded with LCFP Low-Maintenance mix. Refer to other plan sheets for seed mixes outside of the mowed shoulders.
2. Mowed shoulders and seeded slopes 2.5:1 or less shall be hydro-mulched. Slopes greater than 2.5:1, ditches and other concentrated flow zones shall be covered with North American Green (NAG) S75BN erosion control blanket or approved equal and with the manufacturers recommended staple pattern. Ditches typically require a minimum of two (2) rolls of blanket at 6.67' width each.

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

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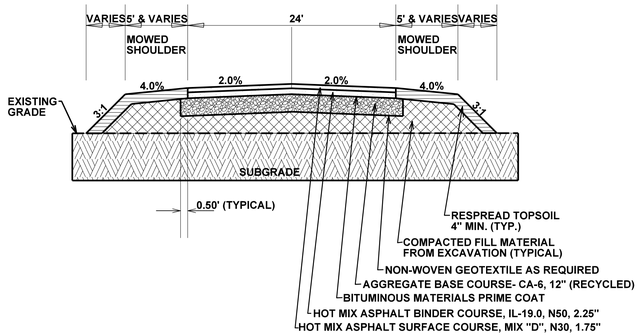
REVISIONS

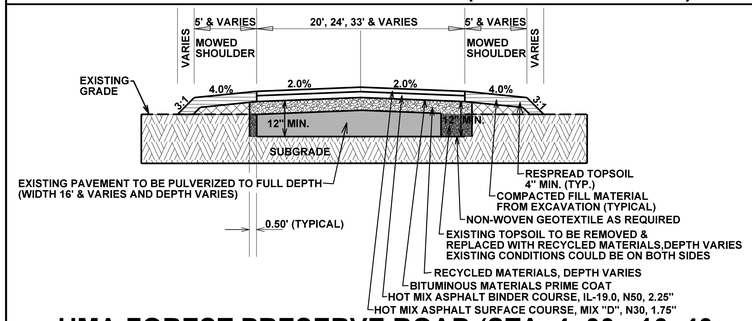
DETAILS

SHEET NUMBER
47
OF 56 SHEETS

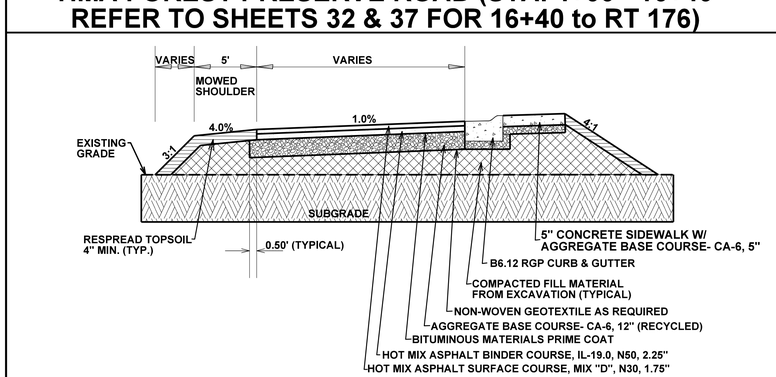
JOB No. 2036



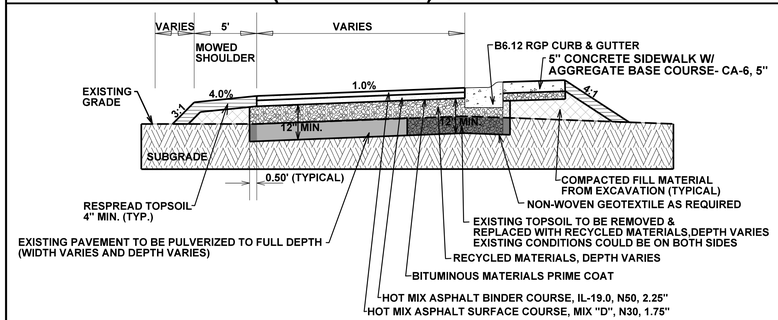
HMA FOREST PRESERVE ROAD (STA. 0+00 - 4+00)



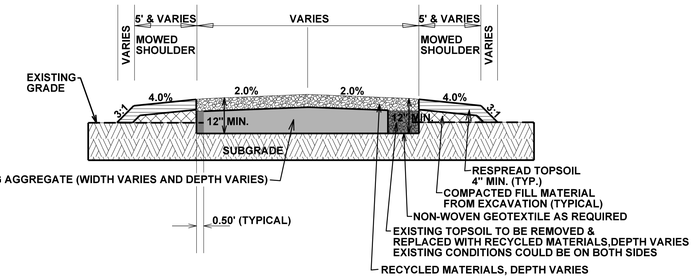
HMA FOREST PRESERVE ROAD (STA. 4+00 - 16+40 REFER TO SHEETS 32 & 37 FOR 16+40 to RT 176)



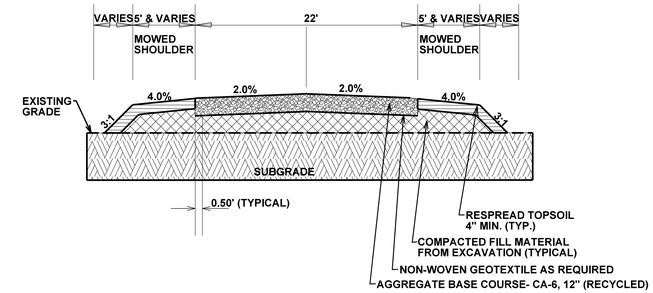
CENTRAL SHELTER(SHELTER 3) & NATURE PLAY HMA PARKING LOT



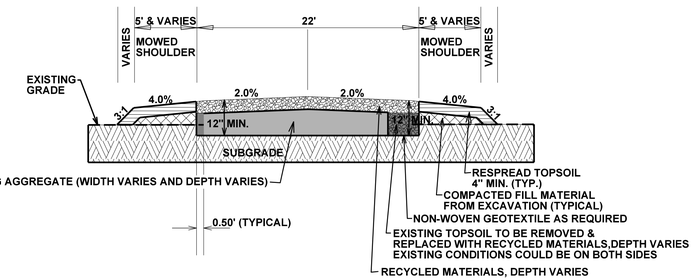
TAYLOR LAKE SHELTER HMA PARKING LOT



WEST SHELTER (EXISTING SHELTER E) PARKING LOT



WEST ROAD (NEW)



WEST ROAD (PARTIALLY RECYCLED)

IN PULVERIZED PAVEMENT AREAS, PULVERIZE AND MIX THE EXISTING BITUMINOUS PAVEMENT WITH THE UNDERLYING AGGREGATE BASE.(PER SPECIFICATION 02610)

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

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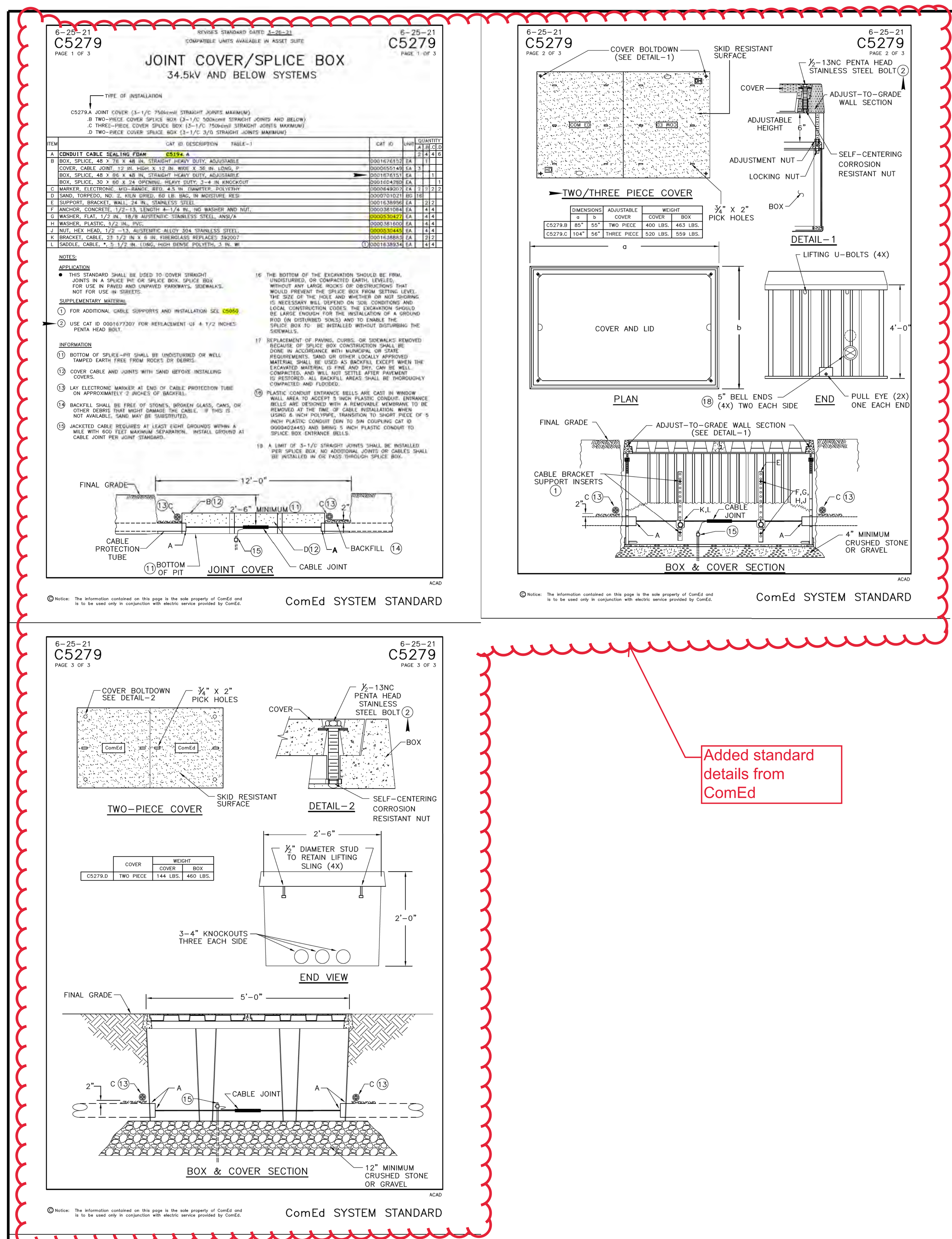
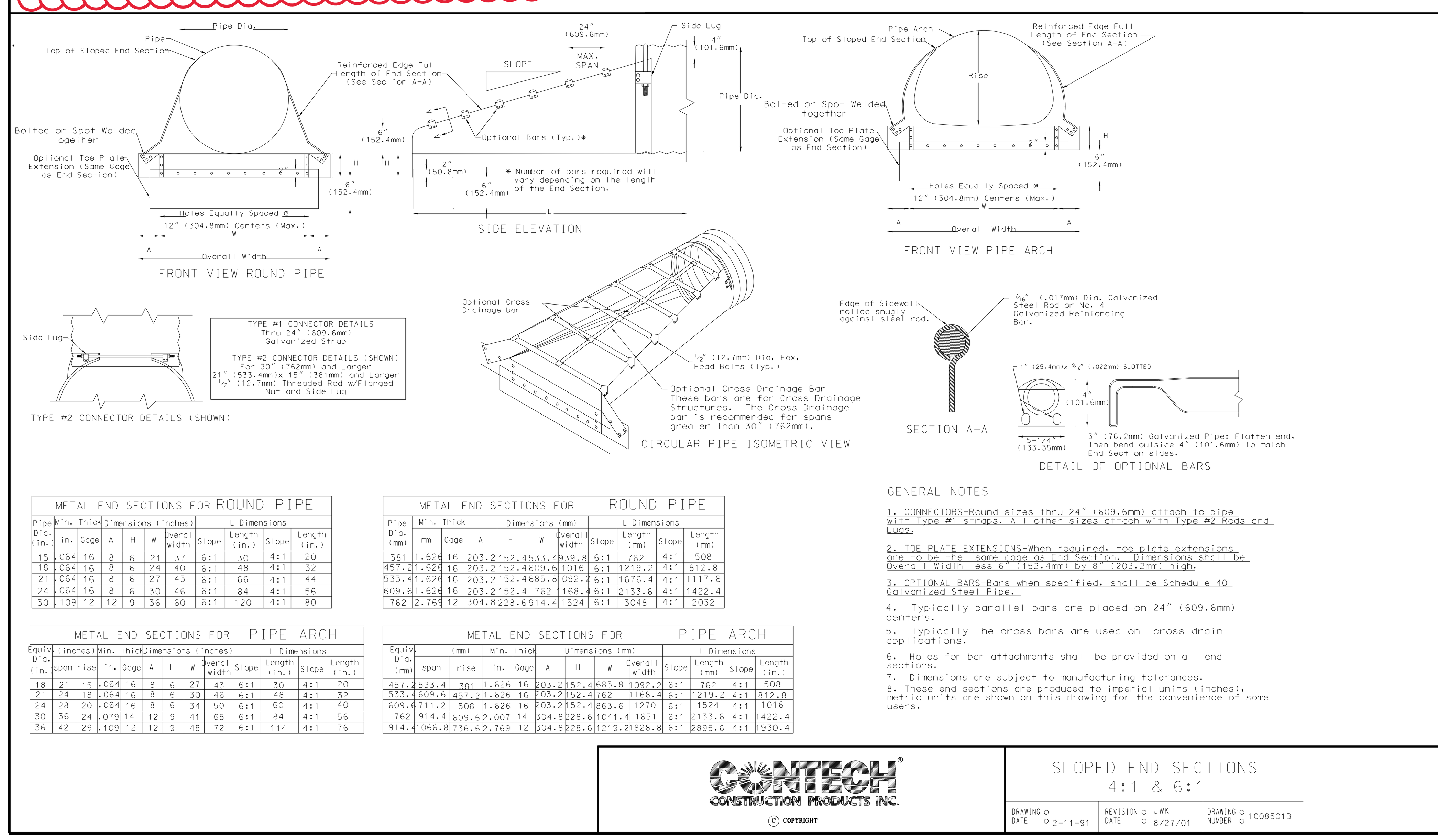
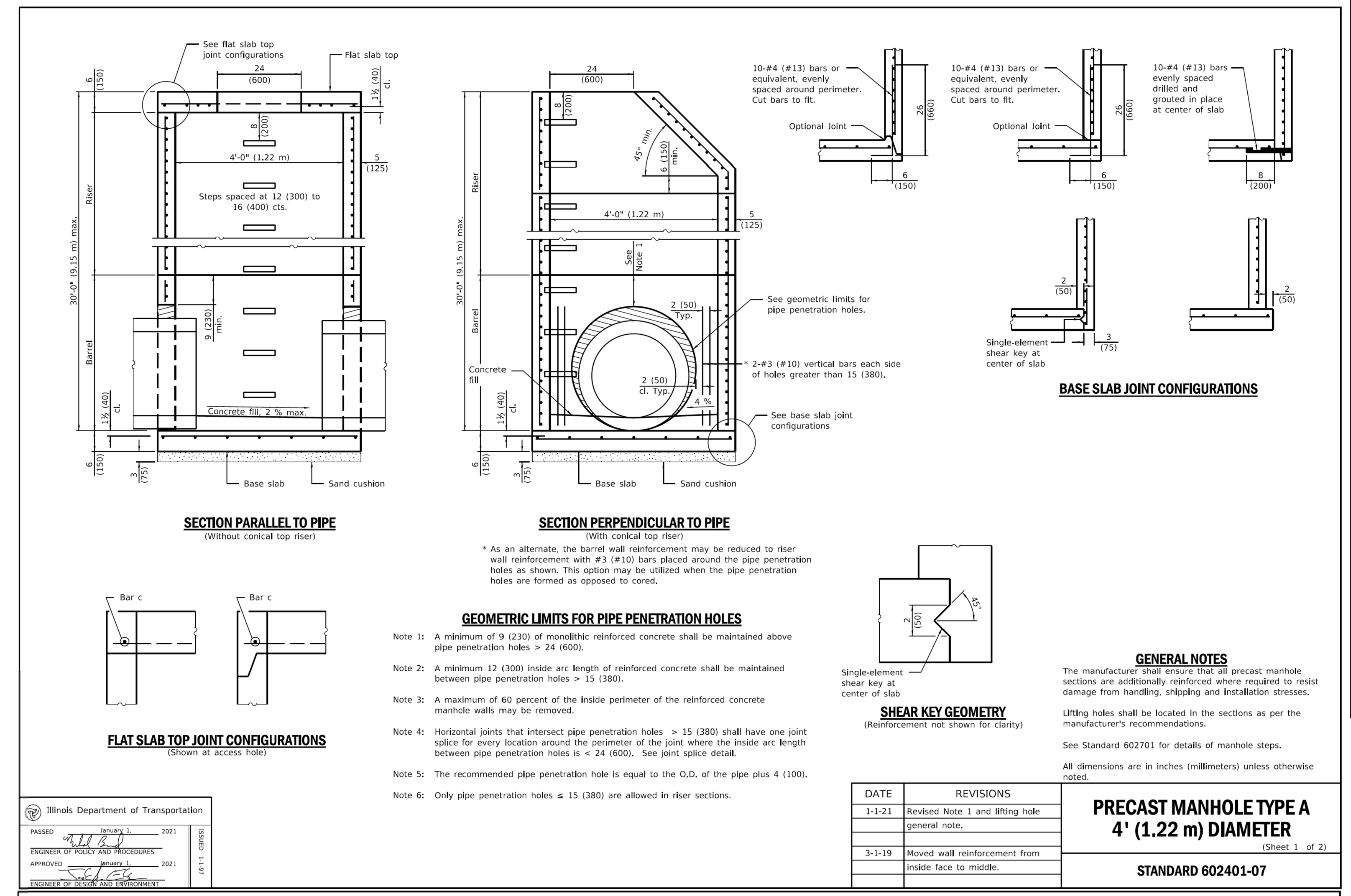
DETAILS

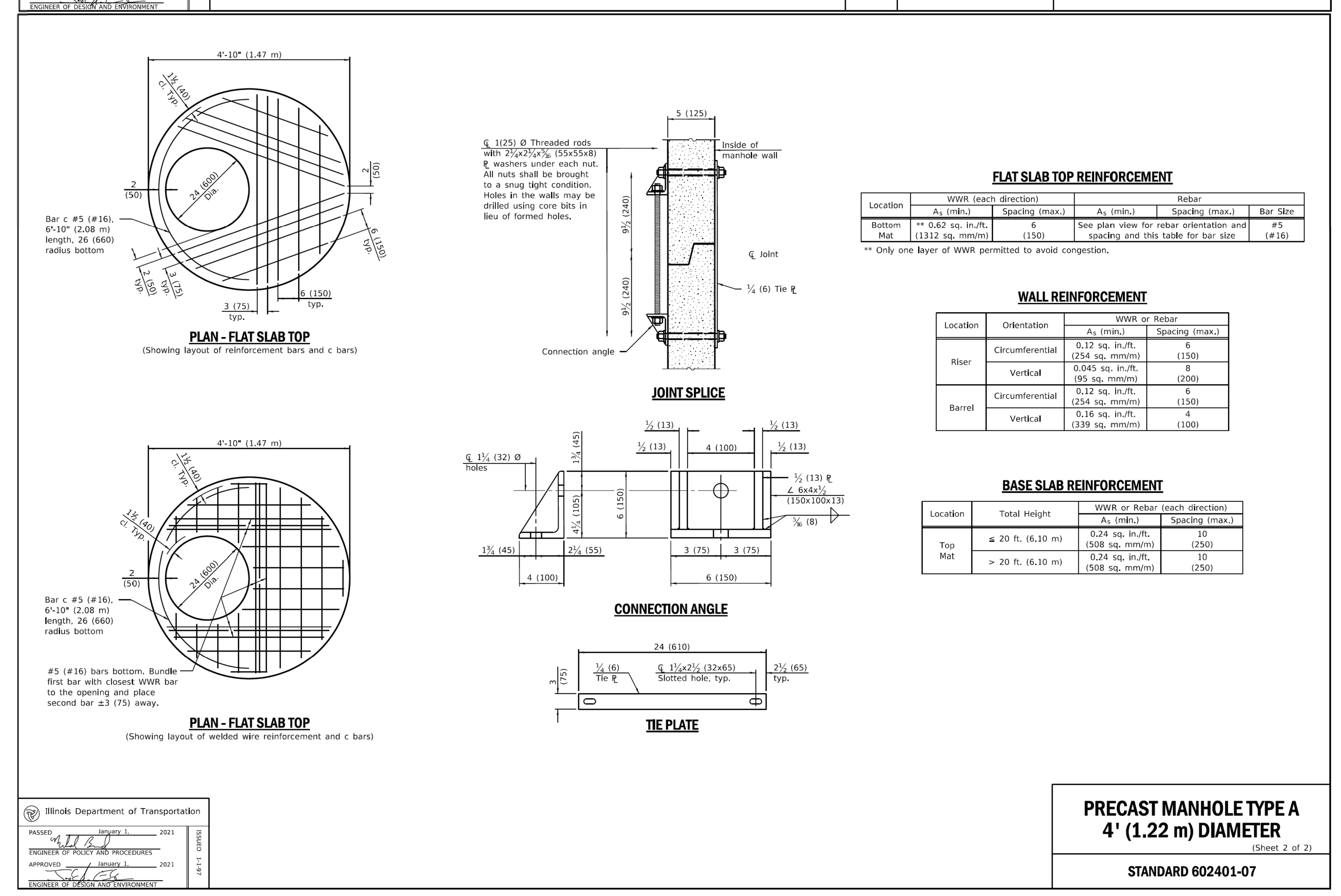
SHEET NUMBER **48** OF 56 SHEETS

JOB No. 2056

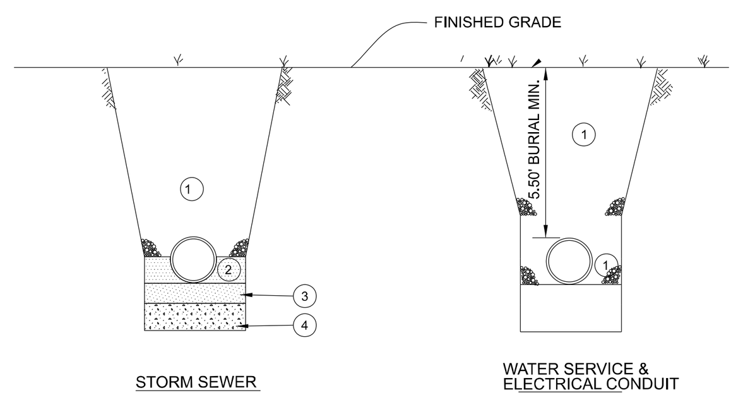








FRAME AND GRATE SHALL BE:
R-4340-B IN GRASSY AREAS



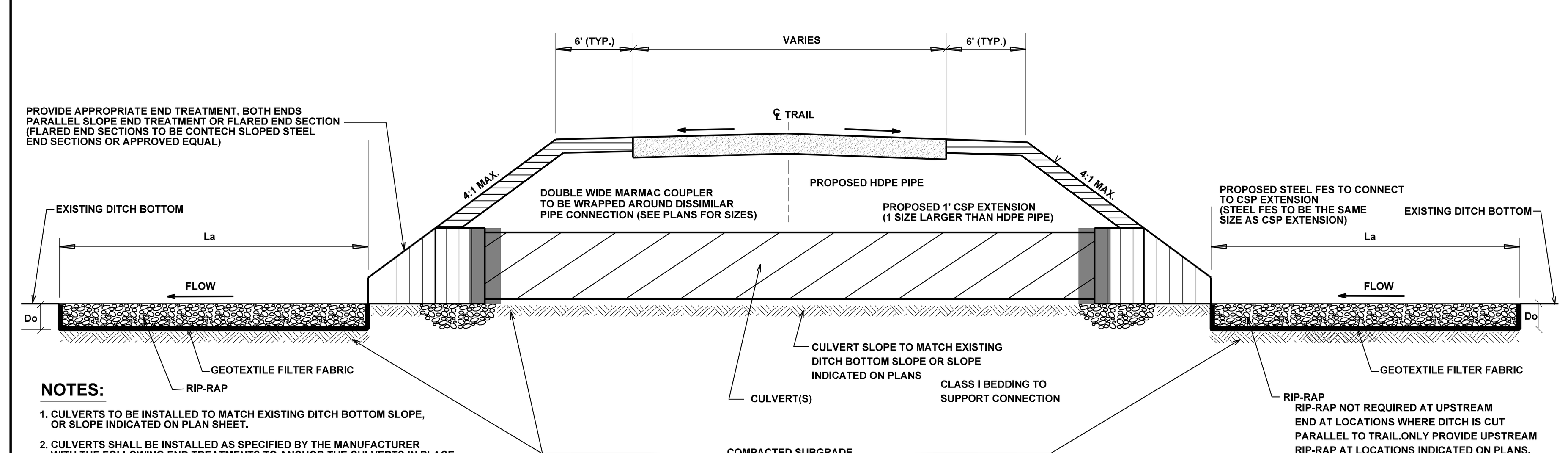
1. BACKFILL
MECHANICALLY COMPACTED CA-6 OR CA-7, IN 6 INCH LIFTS UNDER OR WITHIN 2 FEET OF ANY PAVEMENT, CURB, GUTTER AND SIDEWALK, MACHINE COMPACTION OF EXCAVATED MATERIAL IN OTHER LOCATIONS WHERE SUITABLE.

2. STORM SEWER:
CA-6, CA-7 OR CA-11 TAMPED INTO PLACE TO SPRING LINE OF RCP PIPE ALL AROUND
*CA-6, CA-7 OR CA-11 TO 12" ABOVE TOP OF FLEXIBLE PIPE.

3. BEDDING - STORM
4" BED MECHANICALLY COMPACTED CA-6, CA-7 OR CA-11

4. UNSUITABLE MATERIAL TO BE REMOVED AND REPLACED.

PIPE BEDDING AND TBF DETAIL

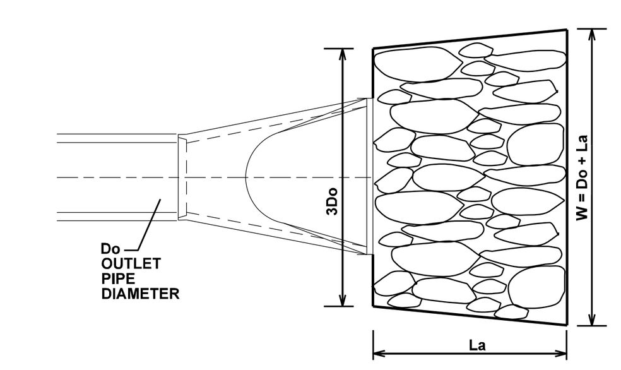


NOTES:

1. CULVERTS TO BE INSTALLED TO MATCH EXISTING DITCH BOTTOM SLOPE, OR SLOPE INDICATED ON PLAN SHEET.
2. CULVERTS SHALL BE INSTALLED AS SPECIFIED BY THE MANUFACTURER WITH THE FOLLOWING END TREATMENTS TO ANCHOR THE CULVERTS IN PLACE.
   - -BOX CULVERTS SHALL BE INSTALLED WITH APPROPRIATE PARALLEL SLOPE END TREATMENT.
   - -CIRCULAR PIPE SHALL BE INSTALLED WITH APPROPRIATE FLARED END SECTION.
   - -ELLIPTICAL RCP SHALL BE INSTALLED WITH APPROPRIATE HEADWALLS
3. JOINTS FOR CONCRETE PIPE SHALL HAVE A TROWEL APPLIED BITUMINOUS MASTIC COMPOUND APPLIED IN ACCORDANCE WITH SECTION 1055 OF THE IDOT STANDARD SPECIFICATION.
4. JOINTS FOR HDPE PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
5. JOINTS FOR CMP PIPE SHALL BE IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS.
6. RIP-RAP SHALL BE INSTALLED AT THE UPSTREAM AND DOWNSTREAM END OF CULVERT(S) INSTALLED IN EXISTING CHANNEL OR DITCH.
7. CONTRACTOR TO PROVIDE PROPER DITCH TRANSITIONS PER DETAIL THIS SHEET. ALL DISTURBED DITCH SIDE SLOPES SHALL BE COMPACTED TO A MINIMUM 95% OF STANDARD PROCTOR.

TRAIL CULVERT CROSSING

RIP-RAP SHALL BE NATURAL FIELD STONE COBBLES EVENLY GRADED FROM 4" TO 8" IN DIAMETER. LIMESTONE RIPRAP IS NOT ACCEPTABLE AND WILL NOT BE ALLOWED THICKNESS OF RIP RAP = 1.00 FT.



DESIGN OF OUTLET PROTECTION FROM A ROUND PIPE FLOWING FULL MINIMUM TAIL WATER CONDITION (Tw < 0.5 DIAMETER)

RIP-RAP AT FLARED END SECTION

CULVERT No.	Pipe Dia.	Plan Q-10	Do	La	W	Cubic Yards
1	18''	11.09	1.50	10.00	11.50	3.00
2	12''	4.31	1.00	7.50	8.50	2.00
3	12''	1.74	1.00	6.00	7.00	2.00
4	15''	3.94	1.25	8.00	9.25	2.00
5	12''	3.33	1.00	6.00	7.00	2.00
6	12''	2.38	1.00	6.00	7.00	2.00
7	12''	3.47	1.00	6.00	7.00	2.00
8	15''	4.07	1.25	8.00	9.25	2.00
9	18''	7.49	1.50	9.00	10.50	2.50
10	12''	1.03	1.00	6.00	7.00	2.00
11	12''	2.99	1.00	6.00	7.00	2.00
12	12''	0.62	1.00	6.00	7.00	2.00
13	18''	13.86	1.50	13.00	14.50	5.00
14A	18''	12.00	1.50	11.00	12.50	4.00
14B	18''	12.00	1.50	11.00	12.50	4.00
14C	18''	12.00	1.50	11.00	12.50	4.00
15	12''	0.33	1.00	6.00	7.00	2.00
16	12''	1.06	1.00	6.00	7.00	2.00
17	18''	11.89	1.50	11.00	12.50	4.00
18	12''	1.30	1.00	6.00	7.00	2.00
19	12''	1.26	1.00	6.00	7.00	2.00
20	12''	2.04	1.00	6.00	7.00	2.00
21	15''	8.75	1.25	11.00	12.25	4.00
22	12''	4.68	1.00	9.00	10.00	3.00
23	12''	1.55	1.00	6.00	7.00	2.00
24	12''	0.95	1.00	6.00	7.00	2.00
27	21''	15.97	1.75	13.00	14.75	5.00
28	12''	1.76	1.00	6.00	7.00	2.00
31	15''	5.27	1.25	8.00	9.25	2.00
35	12''	3.14	1.00	6.00	7.00	2.00
36	12''	4.00	1.00	7.50	8.50	2.00
37	12''	1.45	1.00	7.00	8.00	2.00
38	15''	7.21	1.25	9.00	10.25	3.00
39	15''	9.05	1.25	11.00	12.25	4.00
40	12''	0.99	1.00	6.00	7.00	2.00
41	12''	0.70	1.00	6.00	7.00	2.00
42	12''	1.39	1.00	6.00	7.00	2.00
43	12''	0.39	1.00	6.00	7.00	2.00
USE 2 CY OF RIPI RAP MINIMUM						

OUTLET RIP-RAP DETAIL

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
1850 W. WINCHESTER ROAD - SUITE 205
LIBERTYVILLE, IL. 60048
PHONE: (847) 367-6707
FAX: (847) 367-2567
E-MAIL ADDRESS: pba@pearsonbrown.com

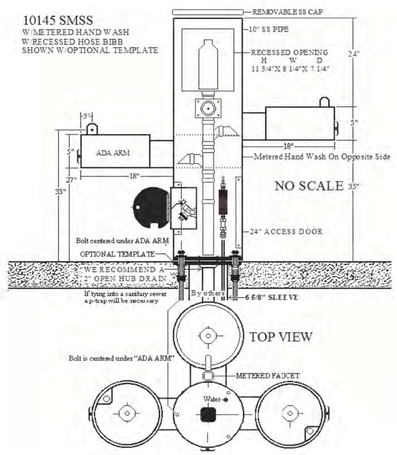
DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

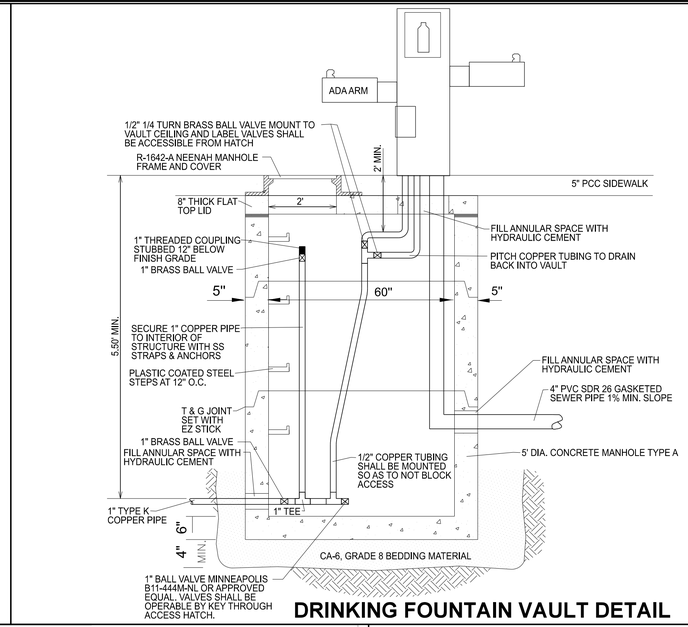
DATE	BY	DESCRIPTION

REVISIONS

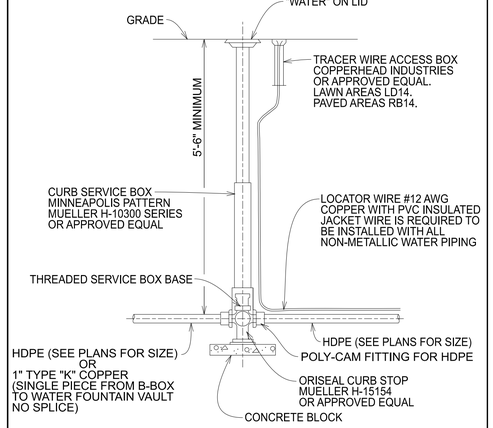
DETAILS

SHEET NUMBER
49
OF 56 SHEETS
JOB No. 2036

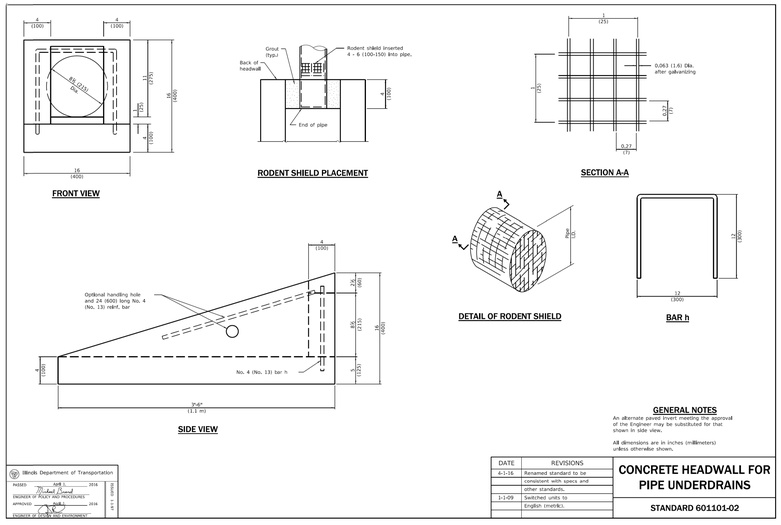




DRINKING FOUNTAIN VAULT DETAIL



B-BOX AND TRACER WIRE ACCESS BOX DETAIL



GENERAL NOTES

An alternate panel insert meeting the approval of the Engineer may be substituted for that shown in side view.

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

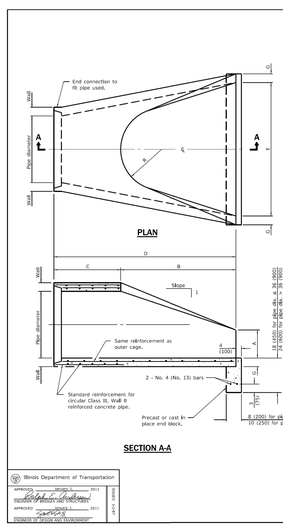
PASSED: April 1, 2016
Michael Bernard
ENGINEER OF POLICY AND PROCEDURES

APPROVED: April 1, 2016
ENGINEER OF BUREAU OF ROADWAY STANDARDS

DATE	REVISIONS
4-1-16	Renamed standard to be consistent with specs and other standards.
1-1-09	Switched units to English (metric).

CONCRETE HEADWALL FOR PIPE UNDERDRAINS

STANDARD 601101-02



PIPE DIA.	APPROX. QTY. lbs. (kg)	WALL	A	B	C	D	E	G	R	APPROX. SLOPE
12 (300)	530 (240)	2 (51)	4 (102)	24 (610)	6'-03⅛" (1,241 m)	6'-03⅛" (1,851 m)	24 (610)	2 (51)	9 (229)	1:2.4
15 (375)	740 (335)	2½ (57)	6 (152)	27 (686)	7'-10" (1,588 m)	6'-1" (1,854 m)	30 (762)	2½ (57)	11 (280)	1:2.4
18 (450)	990 (450)	2½ (64)	9 (229)	27 (686)	7'-10" (1,588 m)	6'-1" (1,854 m)	36 (914)	2½ (64)	12 (305)	1:2.4
21 (525)	1280 (580)	2½ (70)	9 (229)	35 (889)	38 (965)	6'-1" (1,867 m)	3'-6" (2,134 m)	2½ (70)	13 (330)	1:2.4
24 (600)	1520 (690)	3 (76)	9½ (241)	3'-7½" (1,105 m)	30 (762)	6'-1½" (1,867 m)	4'-0" (2,219 m)	3 (76)	14 (356)	1:2.5
27 (675)	1930 (875)	3½ (83)	10½ (267)	4'-0" (1,219 m)	259 (648)	6'-1½" (1,867 m)	4'-4" (2,372 m)	3½ (83)	14½ (368)	1:2.4
30 (750)	2190 (995)	3½ (89)	12 (305)	4'-4" (1,375 m)	195 (500)	6'-1½" (1,874 m)	5'-0" (1,524 m)	3½ (89)	15 (381)	1:2.5
33 (825)	3200 (1450)	3½ (89)	13½ (343)	4'-10½" (1,486 m)	39½ (997)	8'-1½" (2,483 m)	5'-4" (1,676 m)	3½ (89)	17½ (445)	1:2.5
36 (900)	4100 (1860)	4 (102)	15 (381)	5'-3" (1,6 m)	34½ (883)	8'-1½" (2,483 m)	6'-0" (1,829 m)	4 (102)	20 (508)	1:2.5
42 (1050)	5380 (2440)	4½ (114)	21 (533)	5'-9" (1,753 m)	33 (838)	8'-0" (2,489 m)	6'-6" (1,962 m)	4½ (114)	22 (559)	1:2.5
48 (1200)	6550 (2970)	5 (127)	24 (610)	6'-0" (1,829 m)	26 (660)	8'-0" (2,489 m)	7'-0" (2,134 m)	5 (127)	22 (559)	1:2.5
54 (1350)	8240 (3740)	5½ (140)	27 (686)	6'-6" (1,651 m)	35 (889)	8'-4" (2,54 m)	7'-4" (2,286 m)	5½ (140)	24 (610)	1:2.0
60 (1500)	8720 (3960)	6 (152)	35 (889)	5'-0" (1,524 m)	39 (991)	8'-3" (2,515 m)	8'-0" (2,438 m)	5 (127)	*	1:1.9
66 (1650)	10710 (4860)	6½ (165)	30 (762)	6'-0" (1,829 m)	27 (686)	8'-3" (2,515 m)	8'-6" (2,591 m)	5½ (140)	*	1:1.7
72 (1800)	12520 (5680)	7 (178)	36 (914)	6'-6" (1,981 m)	21 (533)	8'-3" (2,514 m)	9'-0" (2,743 m)	5 (152)	*	1:1.8
78 (1950)	14770 (6700)	7½ (191)	36 (914)	7'-6" (2,286 m)	21 (533)	9'-3" (2,819 m)	9'-6" (2,896 m)	6½ (165)	*	1:1.8
84 (2100)	18160 (8240)	8 (203)	36 (914)	7'-6⅜" (2,299 m)	21 (533)	9'-3⅜" (2,832 m)	10'-0" (3,048 m)	6½ (165)	*	1:1.8

* Radius as furnished by manufacturer

GENERAL NOTES

All slope ratios are expressed as units of vertical displacement to units of horizontal displacement (V:H).

All dimensions are in inches (millimeters) unless otherwise shown.

Illinois Department of Transportation

APPROVED: October 1, 2013
Michael Bernard
ENGINEER OF POLICY AND PROCEDURES

APPROVED: October 1, 2013
ENGINEER OF BUREAU OF ROADWAY STANDARDS

DATE	REVISIONS
1-1-11	Clarified ref. to pipe dia. on Section A-A. Changed "toner" to "outer" cage ref.
1-1-09	Switched units to English (metric).

PRECAST REINFORCED CONCRETE FLARED END SECTION

STANDARD 542301-03

STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.

41-2.01 PROTECTION OF WATER MAIN AND WATER SERVICE LINES

41-2.01A GENERAL

Water mains and water service lines shall be protected from sanitary sewers, storm sewers, combined sewers, house sewer service connections and drains as follows:

41-2.01B HORIZONTAL SEPARATION - WATER MAINS AND SEWERS

(1.) Water mains shall be located at least ten (10) feet (3.1 m) horizontally from any existing or proposed drain, storm sewer, sanitary sewer, combined sewer or sewer service connection.

(2.) Water mains may be located closer than ten (10) feet (3.1 m) to a sewer line when:

(a) local conditions prevent a lateral separation of ten (10) feet (3.1 m); and

(b) the water main invert is at least eighteen (18) inches (460 mm) above the crown of the sewer; and

(c) the water main is either in a separate trench or in the same trench on an undisturbed earth shelf located to one side of the sewer.

(3.) When it is impossible to meet (1) or (2) above, both the water main and drain or sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to water main standards of construction. The drain or sewer shall be pressure tested to the maximum expected surcharge head before backfilling. See Standard Drawing No. 18.

WATER AND SEWER SEPARATION REQUIREMENTS (HORIZONTAL SEPARATION)

STANDARD SPECIFICATIONS FOR WATER AND SEWER MAIN CONSTRUCTION IN ILLINOIS, LATEST EDITION.

41-2.01C VERTICAL SEPARATION - WATER MAINS AND SEWERS

(1.) A water main shall be separated from a sewer so that its invert is a minimum of eighteen (18) inches (460mm) above the crown of the drain or sewer whenever water mains cross storm sewers, sanitary sewers or sewer service connections. The vertical seperation shall be maintained for that portion of the water main located within ten (10) feet (3.1m) horizontally of any sewer or drain crossed. A length of water main pipe shall be centered over the sewer to be crossed with joints equidistant from the sewer or drain.

(2.) Both the water main and sewer shall be constructed of slip-on or mechanical joint cast or ductile iron pipe, prestressed concrete pipe, or PVC pipe equivalent to water main standards of construction when:

(a) it is impossible to obtain the proper vertical separation as described in (1) above; or

(b) the water main passes under a sewer or drain.

(3.) A vertical separation of eighteen (18) inches (460 mm) between the invert of the sewer or drain and the crown of the water main shall be maintained where a water main crosses under a sewer. Support the sewer or drain lines to prevent settling and breaking the main, as shown on the Plans or as approved by the ENGINEER.

(4.) Construction shall extend on each side of the crossing until the perpendicular distance from the water main to the sewer or drain line is at least ten (10) feet (3.1 m) See Standard Drawings No. 20-23.

WATER AND SEWER SEPARATION REQUIREMENTS (VERTICAL SEPARATION)

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

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CONSULTING ENGINEERS
1850 W. WINCHESTER ROAD - SUITE 205
LIBERTYVILLE, ILLINOIS 60048
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FAX: (847) 367-2567
E-MAIL ADDRESS: pba@pearsonbrown.com

DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

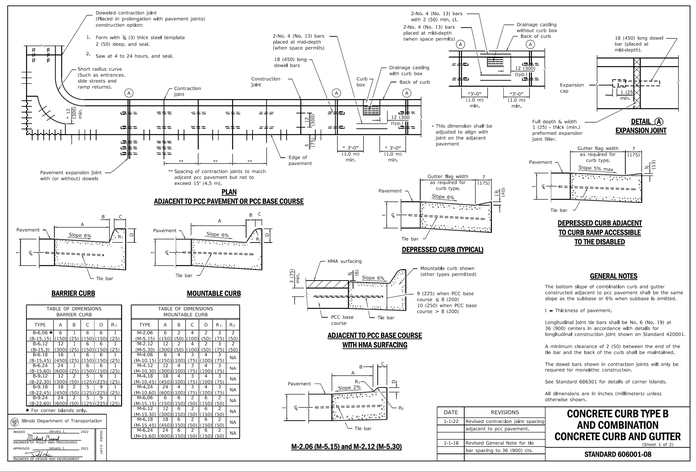
DATE	BY	DESCRIPTION

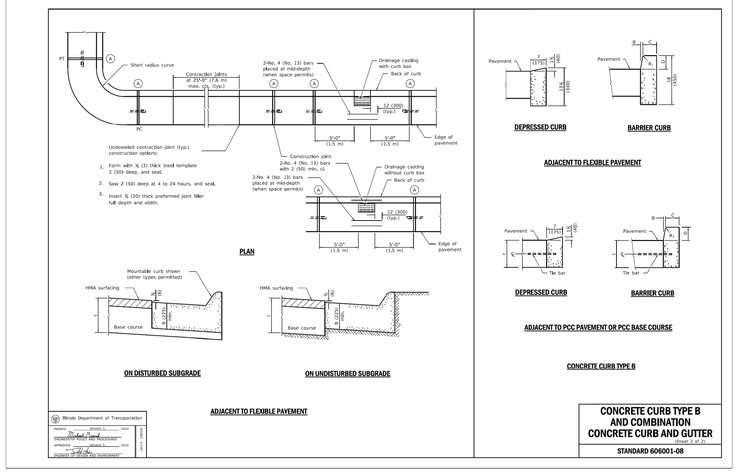
REVISIONS

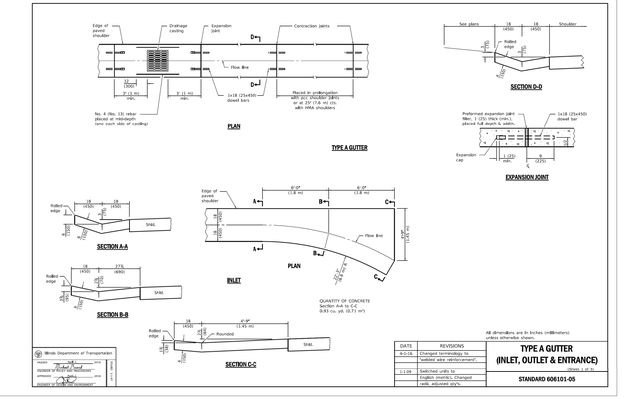
DETAILS

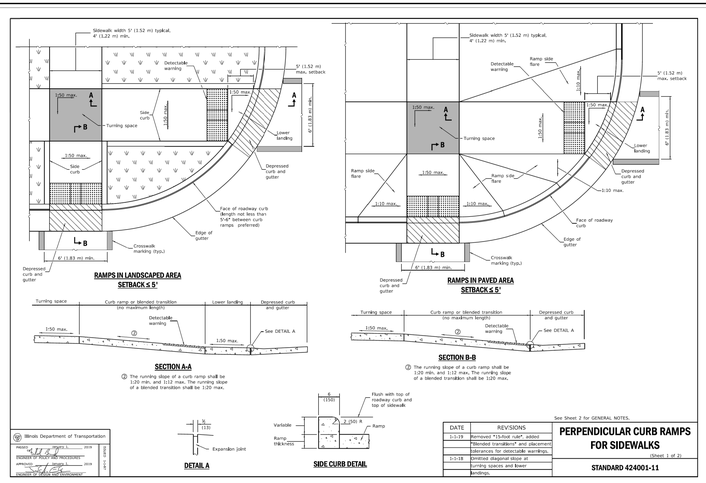
SHEET NUMBER **50** OF 56 SHEETS

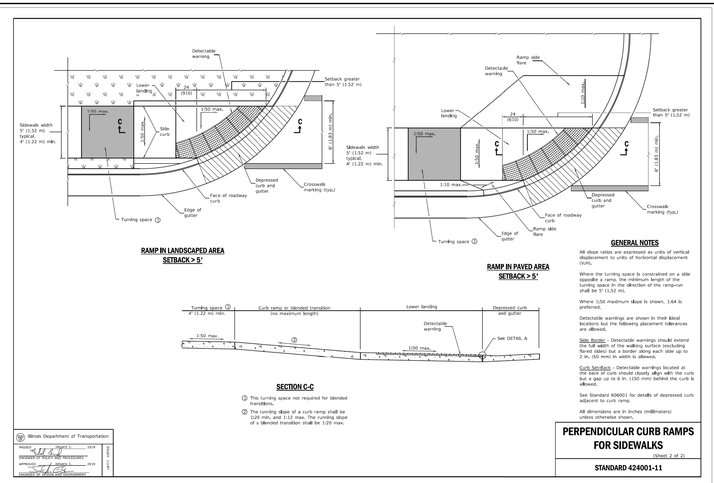
JOB No. 2036

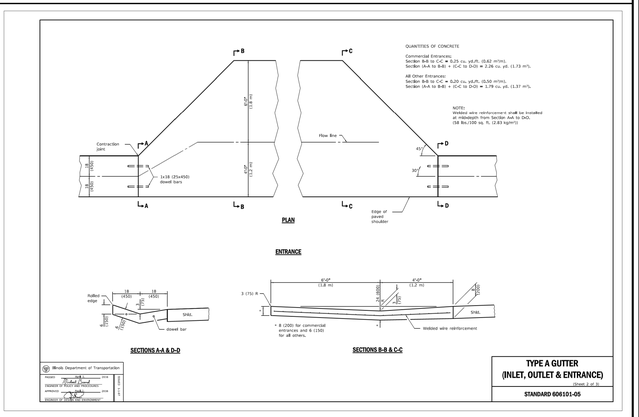


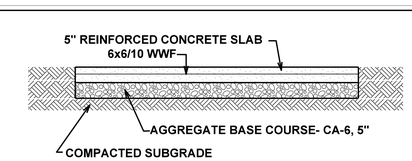




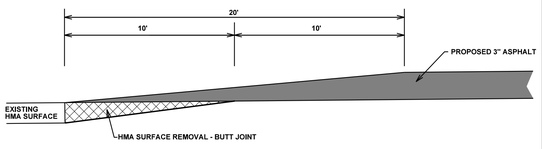




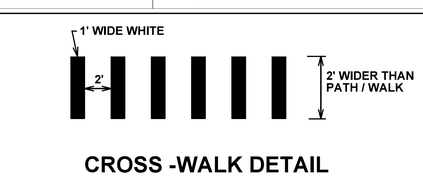




CONCRETE PAD DETAIL



BUTT JOINT DETAIL



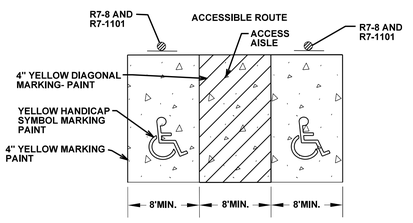
CROSS -WALK DETAIL

NOTES:

ALL PAVEMENT MARKING & STRIPING ON FOREST PRESERVE ROAD SHALL BE THERMOPLASTIC.

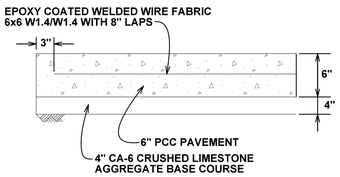
ALL OTHER PAVEMENT MARKING & STRIPING SHALL BE PAINT

ALL CROSS- WALKS SHALL BE THERMOPLASTIC

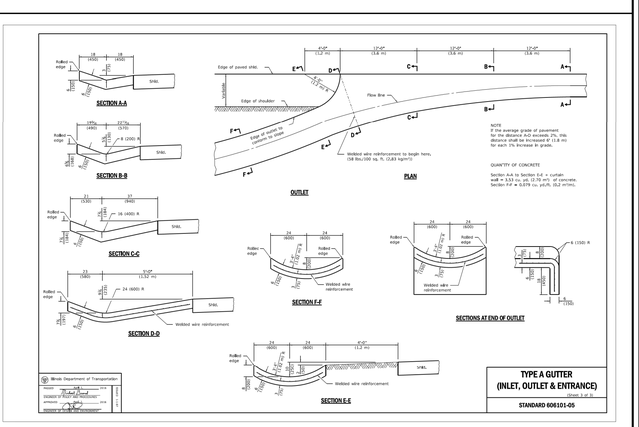


STANDARD IL., DESIGN
ACCESSIBLE ROUTE
REFER TO PLANS FOR ACTUAL DIMENSIONS

ACCESSIBLE CONCRETE PARKING



CONCRETE PAVEMENT DETAIL



LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS
PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
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DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

DESCRIPTION
DATE BY
REVISIONS

DETAILS

SHEET NUMBER
51
OF 56 SHEETS
JOB No. 2056

SOIL EROSION AND SEDIMENT CONTROL

THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH THE FOLLOWING LAKE COUNTY STORMWATER MANAGEMENT COMMISSION (LCSMC) SEDIMENTATION AND EROSION CONTROL NOTES:

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:

UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.

AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUIDEQUIVALENT PRECIPITATION.

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MASURESAS APPROVED BY THE ENFORCEMENT OFFICER.

I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.

J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS, THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.

L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.

M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

2. CONTRACTOR MUST EMPLOY A LAKE COUNTY STORMWATER MANAGEMENT COMMISSION (LCSMC) APPROVED DESIGNATED EROSION CONTROL INSPECTOR (DECI) FOR THIS PROJECT. THE CONTRACTOR'S DECI SHALL BE RESPONSIBLE FOR ALL SOIL EROSION AND SEDIMENT CONTROL INSPECTIONS, RECORD KEEPING, AND OTHER REQUIREMENTS INCLUDING MAINTENANCE OF THE PROJECT'S STORM WATER POLLUTION PREVENTION PLAN (SWPPP). IT IS SOLELY THE RESPONSIBILITY OF THE CONTRACTOR'S DECI TO UNDERSTAND AND COMPLY WITH ALL REGULATIONS, ANY SOIL EROSION AND SEDIMENT CONTROL RELATED FINES OR OTHER PENALTIES IMPOSED UPON OWNER AS A RESULT OF ACTIONS OR INACTIONS OF CONTRACTOR'S DECI SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.

3. GEORIDGE PERMEABLE PLASTIC BERMS SHALL BE INSTALLED AT THE UPSTEAM ENDS OF ALL CULVERTS AND ALONG DRAINAGE DITCHES AT LOCATIONS SHOWN ON PLANS.

4. SOIL EROSION CONTROL MEASURES IN ACCORDANCE WITH THESE SPECIFICATIONS SHALL BE FOLLOWED AS DIRECTED BY THE OWNER OR LCSMC. ANY SOIL EROSION CONTROL MEASURES, IN ADDITION TO THOSE OUTLINED IN THESE PLANS AND WHICH ARE DEEMED NECESSARY BY THE OWNER AND/OR LCSMC, SHALL BE IMPLEMENTED IMMEDIATELY BY THE CONTRACTOR.

5. STREETS ADJACENT TO THE SITE SHALL BE KEPT FREE OF DIRT, MUD AND DEBRIS THROUGH THE USE OF RUBBER TIRE TRACTORS OR STREET SWEEPER.

6. NO SEDIMENT SHALL BE ALLOWED TO ENTER THE EXISTING STORM SEWER SYSTEM. FILTER FABRIC BASKETS SHALL BE USED AT INLETS.

7. WHEN STORM WATER IS TO BE ROUTED THROUGH EXISTING OR PROPOSED DETENTION BASINS IN ORDER TO ALLOW SETTLEMENT OF SILT AND DEBRIS, THE BASINS ARE TO BE CONSTRUCTED IMMEDIATELY UPON COMMENCEMENT OF THE PROJECT. BASINS WILL BE PROPERLY OVER-EXCAVATED SO AS TO PROVIDE SUFFICIENT VOLUME FOR DEBRIS AND SETTLEMENT. IF THE DRAINAGE IS INTO AN EXISTING BASIN, THE UPSTREAM PROJECT WILL BE PROPERLY PROTECTED SO AS TO MINIMIZE SILTATION OF THE DOWNSTREAM BASIN THROUGH THE USE OF EROSION CONTROL PRACTICES.

8. ALL STORM SEWER, CULVERTS, CATCH BASINS, AND/OR DETENTION BASINS PROVIDED WITHIN THIS PROJECT ARE TO BE CLEANED AT THE END OF CONSTRUCTION OF THE PROJECT AND PRIOR TO FINAL ACCEPTANCE. CLEANING MAY ALSO BE REQUIRED DURING THE COURSE OF THE CONSTRUCTION OF THE PROJECT IF IT IS DETERMINED THAT THE SILT AND DEBRIS TRAPS ARE NOT PROPERLY FUNCTIONING AND THEIR PERFORMANCE IS IMPAIRED.

9. A STABILIZED CONSTRUCTION ENTRANCE(S) FOR MUD AND DUST CONTROL SHALL BE ESTABLISHED AT THE ONSET OF CONSTRUCTION ACTIVITY AND SHALL BE MAINTAINED THROUGHOUT THE COURSE OF THE PROJECT. THE CONSTRUCTION ENTRANCE(S) SHALL BE LOCATED WHERE SHOWN ON THE PLAN. SEE STABILIZED CONSTRUCTION ENTRANCE DETAIL.

10. UNLESS SOIL EROSION CONTROL ITEMS ARE SPECIFICALLY REFERRED TO AS BID ITEMS (SUCH AS SILT FENCE, MISC. EROSION CONTROL, ETC.), THEY ARE TO BE CONSIDERED AS INCIDENTAL TO THE COST OF THE CONTRACT.

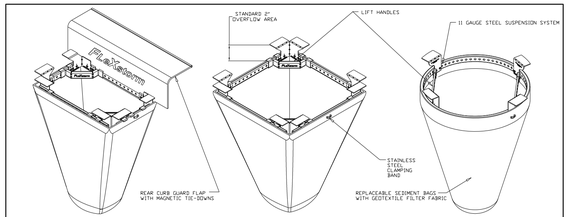
11. UPON COMPLETION OF TOPSOIL RESPREAD OPERATIONS, ALL DISTURBED AREAS SHALL BE SEEDED, SODDED, OR LANDSCAPED AS NOTED ON THE PLAN OR AS DIRECTED BY OWNER.

12. ALL DISTURBED GROUND WITHIN THE STATE, COUNTY AND VILLAGE RIGHT-OF-WAY SHALL BE RESTORED PER THE STANDARDS OF THE APPLICABLE AGENCY.

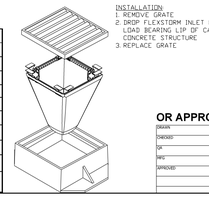
13. EACH RESPECTIVE CONTRACTOR IS RESPONSIBLE FOR THE INSTALLATION, MAINTENANCE, AND ANY NECESSARY CORRECTIVE ACTION ASSOCIATED WITH THE EROSION CONTROL MEASURES SO DESIGNATED FOR THAT CONTRACTOR , THE ITEMS ARE TO BE PROVIDED BY THE DESIGNATED CONTRACTOR AT THE TIME AND IN THE SEQUENCE INDICATED WITHIN THE GENERAL CONSTRUCTION NOTES.

14. SILT FENCE SHALL BE INSTALLED AROUND PERIMETER OF BORROW, TOPSOIL STOCKPILE, AND DISPOSAL AREAS.

15. ALL FIELD TILE ENCOUNTERED DURING CONSTRUCITON OPERATIONS SHALL BE REPAIRED WITH NEW PIPE OF SIMILAR SIZE AND MATERIAL TO THE ORIGINAL LINE AND PUT IN ACCEPTABLE OPERATING CONDITION. TILES MAY ALSO BE REROUTED OR CONNECTED TO PROPOSED STORMWATER CONVEYANCE SYSTEM TO MAINTAIN DRAINAGE. ALL OF SAID RELOCATIONS/REPAIRS SHALL BE DONE AT THE DIRECTION OF THE LAKE COUNTY FOREST PRESERVE. A RECORD OF THE LOCATION OF ALL FIELD TILE FOR ON-SITE DRAIN PIPE ENCOUNTERED SHALL BE KEPT BY THE CONTRACTOR AND TURNED OVER TO THE OWNER UPON COMPLETION OF THE PROJECT. THE COST OF THIS WORK SHALL BE CONSIDERED AS INCIDENTAL TO THE CONTRACT AND NO ADDITIONAL COMPENSATION WILL BE ALLOWED.



FLEXSTORM Inlet Filter Specifications		
WOVEN Geotextile Sediment Bag Specs (2 ft³/ sq ft vol)		
Material Property	Test Method	Value (ave)
Grab Tensile	ASTM D 4632	255 x 275
Puncture Strength	ASTM D 4833	135 lbs
Trapezoidal Tear	ASTM D 4533	75 lbs
UV Resistance	ASTM D 4355	90%
App Open Size (AOS)	ASTM D 4751	20 sieve
Permittivity	ASTM D 4491	1.5 / sec
Water Flow Rate	ASTM D 4491	200 gpm/sqft
Sediment Removal Efficiency (8% mix)	ASTM D 7351	82%



OR APPROVED EQUAL

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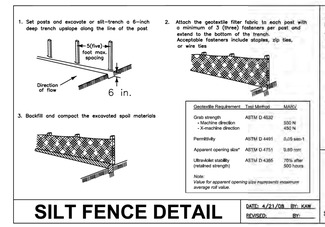
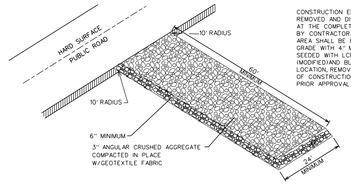


SILT FENCE DETAIL

DATE: 4/21/08 BY: KAW
REVISED: BY:

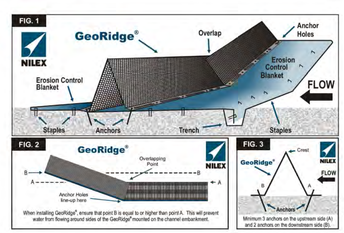
ALL SILT FENCE MUST MEET THE APPLICABLE STANDARDS OF AASHTO 288-00 OR EQUIVALENT

TO BE INSTALLED ONLY IN THOSE LOCATIONS AS DIRECTED BY THE OWNER.



STABILIZED CONSTRUCTION ENTRANCE

FINAL LOCATION OF THE CONSTRUCTION ENTRANCES SHALL BE DETERMINED IN THE FIELD BY THE LCFP.



INSTALLATION INSTRUCTIONS

Select an erosion control blanket (ECB) grade based on the channel geometry and flow conditions. Follow manufacturer's recommended installation procedures.

Refer to the diagram for steps 1-4:

Step 1: A section of ECB shall be placed across the flowline direction of the channel prior to the installation of the GeoRidge®. The ECB section must span the entire width of the channel, while the width of the blanket must be at least one roll width or no less than 1.22m (4 ft.).

Step 2: The upstream edge of the ECB must be secured in a 150mm (4") trench. Secure the blanket in the trench using 150mm or 6 inch minimum staples placed at 50mm (1.07 ft.) intervals along the edge. Backfill and re-compact the soil in the upstream edge trench.

Step 3: Secure the downstream edge of the blanket with 150mm or 6 inch minimum staples placed at 300mm (1 ft.) intervals along the edge.

Step 4: Place the GeoRidge® berm in the middle of the ECB and anchor with 10 inch spiral spikes. Anchor spacing depends on soil condition and density. Minimum recommendation is 3 anchors on the upstream side and 2 anchors on the downstream side. The anchors will prevent water from going around or under the GeoRidge®. (See figure 2.)

NOTE: If multiple GeoRidge® panels are required to span a channel, ensure that the anchor holes line-up when you overlap each panel. (See figure 2.)

SPACING: When positioning GeoRidge® panels in a channel, the gradient plays a key role in the distance between panels as follows:

GRADIENT	SPACING
1%	23.8 m
2%	11.9 m
3%	7.7 m
4%	5.8 m
5%	4.6 m
6%	3.8 m
7%	3.3 m
8%	2.9 m
9%	2.6 m
10%	2.3 m

Spacing is based on calculating the height of GeoRidge® divided by the gradient.

Example: On a 3% gradient...
0.230 m (height of GeoRidge®) / 0.02 Gradient = 11.5 m spacing.

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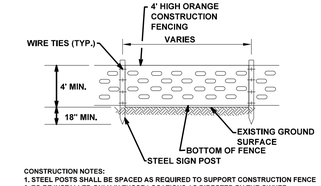
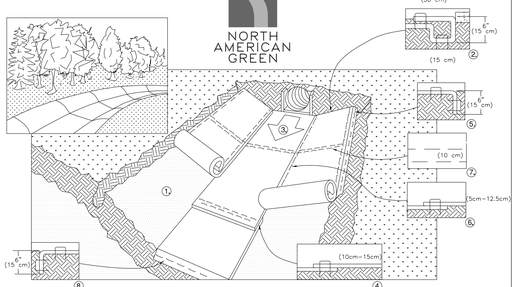
PERMEABLE PLASTIC DITCH CHECK



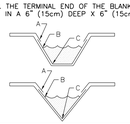
CONSTRUCTION NOTES:
1. STEEL POSTS SHALL BE SPACED AS REQUIRED TO SUPPORT CONSTRUCTION FENCE
2. TO BE INSTALLED ONLY IN THOSE LOCATIONS AS DIRECTED BY THE OWNER.

TEMPORARY CONSTRUCTION FENCE

CHANNEL INSTALLATION
S75BN



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" (15cm) DEEP X 6" (15cm) 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" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART 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 OPTIONAL 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" (10cm-15cm) OVERLAP. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) 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" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.
6. ADJACENT BLANKETS MUST BE OVERLAPPED APPROXIMATELY 2"-5" (5cm-12.5cm) (DEPENDING ON BLANKET TYPE) AND STAPLED. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ON THE BLANKET BEING OVERLAPPED.
7. IN HIGH FLOW CHANNEL APPLICATIONS, A STAPLE CHECK SLOT IS RECOMMENDED AT 30 TO 40 FOOT (9m-12m) INTERVALS. USE A DOUBLE ROW OF STAPLES STAGGERED 4" (10cm) APART AND 4" (10cm) 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" (30cm) APART IN A 6" (15cm) DEEP X 6" (15cm) WIDE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING.



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.

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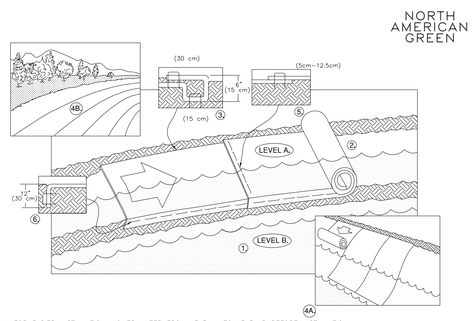
SHORELINE INSTALLATION
S75BN



1. FOR EASIER INSTALLATION, LOWER WATER FROM LEVEL A TO LEVEL B BEFORE INSTALLATION.
2. 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.
3. BEGIN AT THE TOP OF THE SHORELINE BY ANCHORING THE BLANKET IN A 6" (15cm) DEEP X 6" (15cm) 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" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART ACROSS THE WIDTH OF THE BLANKET.
4. ROLL BLANKETS EITHER (A.) DOWN THE SHORELINE FOR LONG BANKS, (TOP TO BOTTOM) OR (B.) HORIZONTALLY ACROSS THE SHORELINE 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 OPTIONAL DOT SYSTEM™, STAPLES/STAKES SHOULD BE PLACED THROUGH EACH OF THE COLORED DOTS CORRESPONDING TO THE APPROPRIATE STAPLE PATTERN.
5. THE EDGES OF ALL HORIZONTAL AND VERTICAL BLANKET SEAMS MUST BE STAPLED WITH APPROXIMATELY 2"-5" (5cm-12.5cm) OVERLAP. TO ENSURE PROPER SEAM ALIGNMENT BETWEEN ADJACENT BLANKETS, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ON THE PREVIOUSLY INSTALLED BLANKET. SECURE ALL OVERLAPS WITH STAPLES SPACED 12" (30cm) APART.

NOTE:
* SEAM OVERLAP SHOULD BE SHINGLED ACCORDING TO PREDOMINANT EROSIVE ACTION.

6. THE EDGE OF THE BLANKET AT OR BELOW NORMAL WATER LEVEL MUST BE ANCHORED BY PLACING THE BLANKET IN A 12" (30cm) DEEP X 6" (15cm) WIDE ANCHOR TRENCH. ANCHOR THE BLANKET WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) APART IN THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING (STONE OR SOIL MAY BE USED AS BACKFILL)

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

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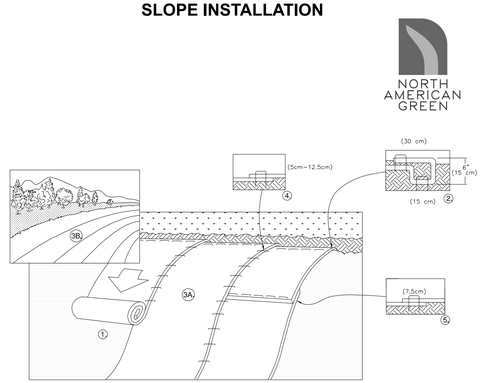
SLOPE INSTALLATION



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" (15cm) DEEP X 6" (15cm) 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" (30cm) APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" (30cm) PORTION OF BLANKET BACK OVER SEED AND COMPACTED SOIL. SECURE BLANKET OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" (30cm) 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 OPTIONAL 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" (5cm-12.5cm) OVERLAP DEPENDING ON BLANKET TYPE. TO ENSURE PROPER SEAM ALIGNMENT, PLACE THE EDGE OF THE OVERLAPPING BLANKET (BLANKET BEING INSTALLED ON TOP) EVEN WITH THE COLORED SEAM STITCH™ON THE PREVIOUSLY INSTALLED BLANKET.
5. CONSECUTIVE BLANKETS SPLICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH AN APPROXIMATE 3" (7.5cm) OVERLAP. STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" (30cm) APART ACROSS ENTIRE BLANKET WIDTH.

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

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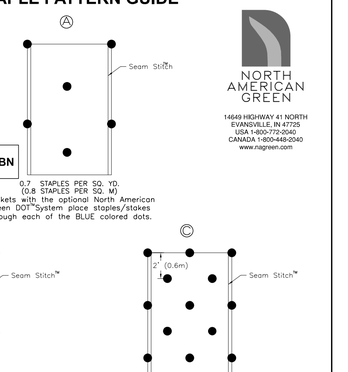
STAPLE PATTERN GUIDE



NOTE:
USE STAPLE PATTERN B FOR S75BN & PATTERN E FOR SC150BN

0.7 STAPLES PER SQ. YD. (0.8 STAPLES PER SQ. M)
Blankets with the optional North American Green DOT™System place staples/stakes through each of the BLUE colored dots.

1.2 STAPLES PER SQ. YD. (1.4 STAPLES PER SQ. M)
Blankets with the optional North American Green DOT™System place staples/stakes through each of the RED colored dots.

1.7 STAPLES PER SQ. YD. (2.0 STAPLES PER SQ. M)
Blankets with the optional North American Green DOT™System place staples/stakes through each of the GREEN colored dots.

3.4 STAPLES PER SQ. YD. (4.1 STAPLES PER SQ. M)
Blankets with the optional North American Green DOT™System place staples/stakes through each of the WHITE colored dots.

3.8 STAPLES PER SQ. YD. (4.5 STAPLES PER SQ. M)
Blankets with the optional North American Green DOT™System place staples/stakes through each of the YELLOW colored dots.

*Location of Seam Stitch™ will vary depending on North American Green product type: –Approx. 5" seam overlap for BioNet erosion control blankets

NORTH
10' 0 10'
5' 0 5'
SCALE: 1" = 10' (24" x 36")
SCALE: 1" = 20' (11" x 17")

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
1850 W. WINCHESTER ROAD - SUITE 205
LIBERTYVILLE, ILLINOIS 60048
PHONE: (847) 367-6707
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E-MAIL ADDRESS: pba@pearsonbrown.com

DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

DESCRIPTION	DATE BY
REVISIONS	

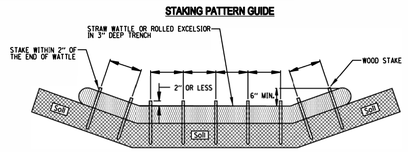
DETAILS

SHEET NUMBER
52
OF 56 SHEETS

JOB No. 2036

ROLLED EROSION CONTROL PRODUCTS

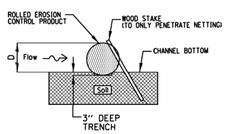
STAKING PATTERN GUIDE



NOTES:
1. OVERLAP MINIMUM IS THE DIAMETER OF THE ROLL.
2. 4' SPACING FOR WATTLES.
3. 2' SPACING FOR ROLLED EXCELSIOR.
4. OR SPACE ACCORDING TO MANUFACTURER'S SPECIFICATIONS.

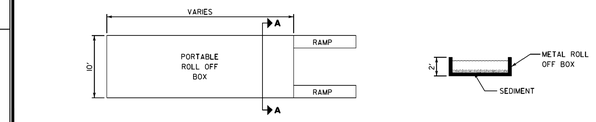
FILTER SOCK

STAKE DETAIL

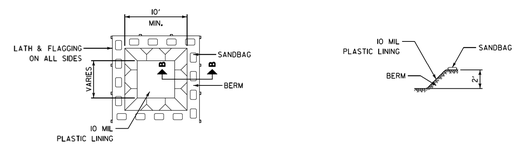


NOTES:
1. DRAWINGS ARE NOT TO SCALE.
2. ENDS OF WATTLES OR ROLLED EXCELSIOR SHALL BE TURNED AT LEAST 6" UPSLOPE.
3. RECOMMENDED STAKES ARE 1 1/8" WIDE x 1 1/8" THICK x 30" LONG.
4. STAKES SHALL NOT EXTEND ABOVE THE STRAW WATTLE MORE THAN 2".
5. SPACING: THE TOE OF THE UPSTREAM DITCH CHECK SHALL CREATE A HORIZONTAL LINE WITH THE TOP OF THE DOWNSTREAM DITCH CHECK.

REFERENCE		STANDARD DWG. NO.
Project		IUM-514
Designed	Date	SHEET 1 OF 1
Checked	Date	DATE 08-2-2019
Approved	Date	



PLAN VIEW — **PREFAB PORTABLE WASHOUT** — SECTION A-A



PLAN VIEW — **BELOW GRADE** — SECTION B-B

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

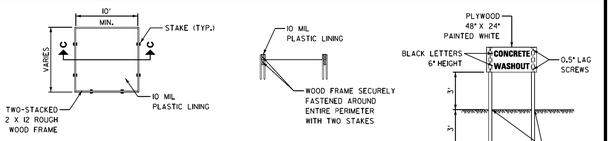
NOT TO SCALE

REVISIONS	DATE

LakeCounty Division of Transportation — APPROVED BY: MCZ — DATE: March 17, 2008

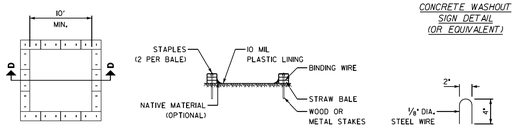
CONCRETE WASHOUT FACILITIES
SHEET 1 OF 2

LC1421



PLAN VIEW — **ABOVE GRADE** — SECTION C-C

CONCRETE WASHOUT SIGN DETAIL (OR EQUIVALENT)



PLAN VIEW — **ABOVE GRADE WITH STRAW BALES** — SECTION D-D

STAPLE DETAIL

NOTES:
1. ACTUAL LAYOUT DETERMINED IN FIELD.
2. OTHER WASHOUT DESIGNS MAY BE USED IF APPROVED BY THE ENGINEER.
3. THE CONCRETE WASHOUT SIGN SHALL BE INSTALLED WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.

NOT TO SCALE

REVISIONS	DATE

LakeCounty Division of Transportation — APPROVED BY: MCZ — DATE: March 17, 2008

CONCRETE WASHOUT FACILITIES
SHEET 2 OF 2

LC1422

LAKE COUNTY

STORMWATER MANAGEMENT COMMISSION

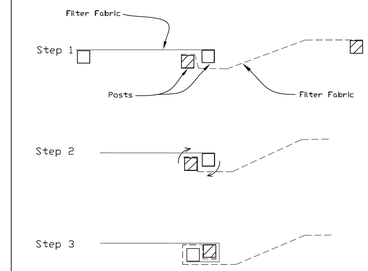
TYPICAL CONSTRUCTION SEQUENCING

1.) Installation of soil erosion and sediment control SE/SC measures
  a.) Selective vegetation removal for silt fence installation
  b.) Silt fence installation
  c.) Construction fencing around areas not to be disturbed
  d.) Stabilized construction entrance
2.) Tree removal where necessary (clear & grub)
3.) Construct sediment trapping devices (sediment traps, basins…)
4.) Construct detention facilities and outlet control structure with restrictor & temporary perforated riser
5.) Strip topsoil, stockpile topsoil and grade site
6.) Temporarily stabilize topsoil stockpiles (seed and silt fence around toe of slope)
7.) Install storm sewer, sanitary sewer, water and associated inlet & outlet protection
8.) Permanently stabilize detention basins with seed and erosion control blanket
9.) Temporarily stabilize all areas including lots that have reached temporary grade
10.) Install roadways
11.) Permanently stabilize all outlot areas
12.) Install structures and grade individual lots
13.) Permanently stabilize lots
14.) Remove all temporary SE/SC measures after the site is stabilized with vegetation

* Soil erosion and sediment control maintenance must occur every two weeks and after every ½ or greater rainfall event

U:\Regulatory Program\SESC handouts\TYPICAL CONSTRUCTION SEQUENCING.doc

SILT FENCE - SPLICING TWO FENCES



ATTACHING TWO SILT FENCES

1. Place the end post of the second fence inside the end post of the first fence.
2. Rotate both posts at least 180 degrees in a clockwise direction to create a tight seal with the fabric material.
3. Cut the fabric near the bottom of the stakes to accomodate the 6" flap.
4. Drive both posts a minimum of 18 inches into the ground and bury the flap.
5. Compact backfill (particularly at splices) completely to prevent stormwater piping.

REFERENCE		STANDARD DWG. NO.
Project		IUM-620B(W)
Designed	Date	SHEET 1 OF 1
Checked	Date	DATE 3-16-2012
Approved	Date	

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
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DESIGNED BY: D.S.H.
DRAWN BY: A.Z.
CHECKED BY: A.K.Z.
ORIGINAL ISSUE: 02/24/23

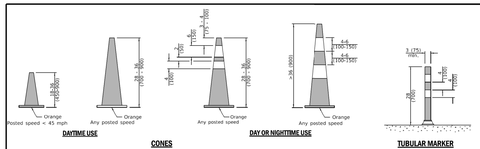
DATE	BY	DESCRIPTION
05/23/23	AZ	REVISED PER LCSMC REVIEW COMMENTS

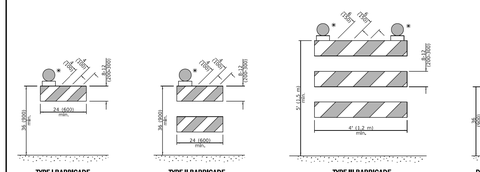
REVISIONS

DETAILS

SHEET NUMBER 53 OF 56 SHEETS

JOB No. 2036





GENERAL NOTES

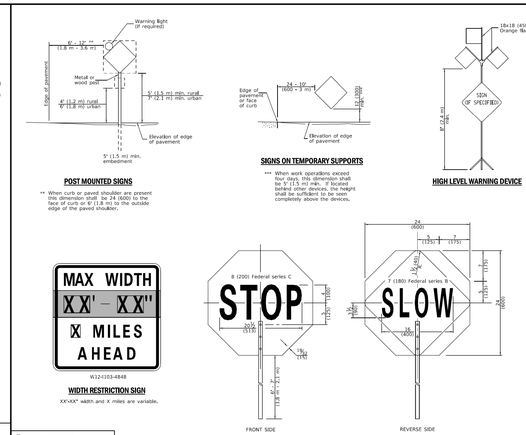
All heights shown shall be measured above the pavement surface.

All dimensions are in inches (millimeters) unless otherwise shown.

DATE	REVISIONS
1-1-19	Revised cone usage and added cones >30" (900 m) height.
1-1-18	Revised END WORK ZONE SPEED LIMIT sign from orange to white background.

TRAFFIC CONTROL DEVICES (Sheet 1 of 3)

STANDARD 701901-08



POST MOUNTED SIGNS

** When curb or paved shoulder are present this dimension shall be 24 (600) to the bottom of the sign, as measured from the outside edge of the paved shoulder.

SIGNS ON TEMPORARY SUPPORTS

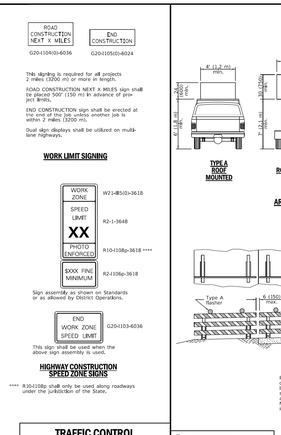
*** When work operations exceed four days, this dimension shall be 5' (1.5 m) min. If located within the clear zone, the height shall be sufficient to be seen completely above the devices.

HIGH LEVEL WARNING DEVICE

WIDTH RESTRICTION SIGN

XX'-XX" width and X miles are variable.

FLAGGER TRAFFIC CONTROL SIGN



This signing is required for all projects 2 miles (3200 m) or more in length.

ROAD CONSTRUCTION NEXT X MILES sign shall be placed 500' (150 m) in advance of project limits.

END CONSTRUCTION sign shall be erected at the end of the job unless another job is within 2 miles (3200 m).

Dual sign displays shall be utilized on multi-lane highways.

WORK LIMIT SIGNING

Sign assembly as shown on Standards or as allowed by District Operations.

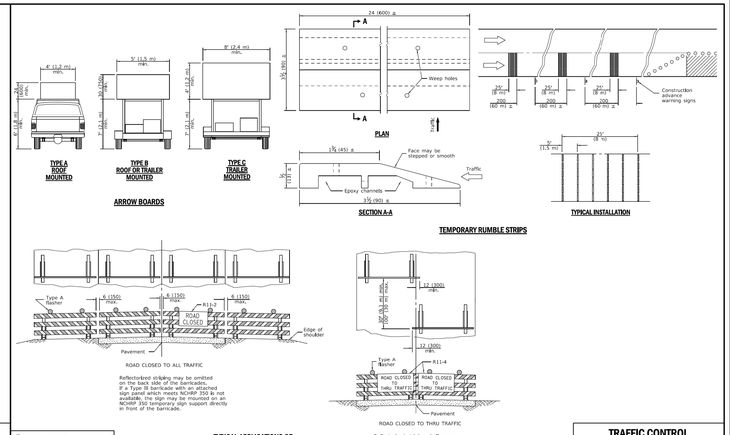
This sign shall be used when the above sign assembly is used.

HIGHWAY CONSTRUCTION SPEED ZONE SIGNS

**** R30-110bp shall only be used along roadways under the jurisdiction of the State.

TRAFFIC CONTROL DEVICES (Sheet 2 of 3)

STANDARD 701901-08



Reflectorized striping may be omitted on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on an NCHRP 350 temporary sign support directly in front of the barricade.

TYPICAL APPLICATIONS OF TYPE III BARRICADES CLOSING A ROAD

Reflectorized striping shall appear on the back side of the barricades. If a Type III barricade with an attached sign panel which meets NCHRP 350 is not available, the sign may be mounted on NCHRP 350 temporary sign supports directly in front of the barricade.

TRAFFIC CONTROL DEVICES (Sheet 3 of 3)

STANDARD 701901-08

GRADING NOTE

PROPOSED GRADING SHOWN OVER AT-GRADE SEPTIC SYSTEM FOR PREFERENCE ONLY TO ESTABLISH DRAINAGE. INSTALLER TO ENSURE MINIMUM MATERIAL DEPTHS AND COVERS PER DETAILS.

DESIGN NOTE

THIS PLAN FOR LIFT STATION, SEPTIC TANK & AT-GRADE INSTALLATION ONLY. FOR ALL OTHER DESIGN DETAILS SEE ENGINEERING SITE PLAN BY OTHERS.

SITE DATA

SEE ENGINEERING SITE PLAN BY OTHERS. TOTAL DISTURBED AREA FOR SEPTIC ONLY = 0.34 ACRES

BENCHMARK

LAKE COUNTY BENCHMARK
MARKER DESIGNATION 1-58B
CHISELED SQUARE IN CONCRETE APPROX. 0.45 MILES WEST OF INTERSECTION OF FAIRFIELD RD & IL RT 176
BENCHMARK ELEVATION = 819.75' (NAVD88)

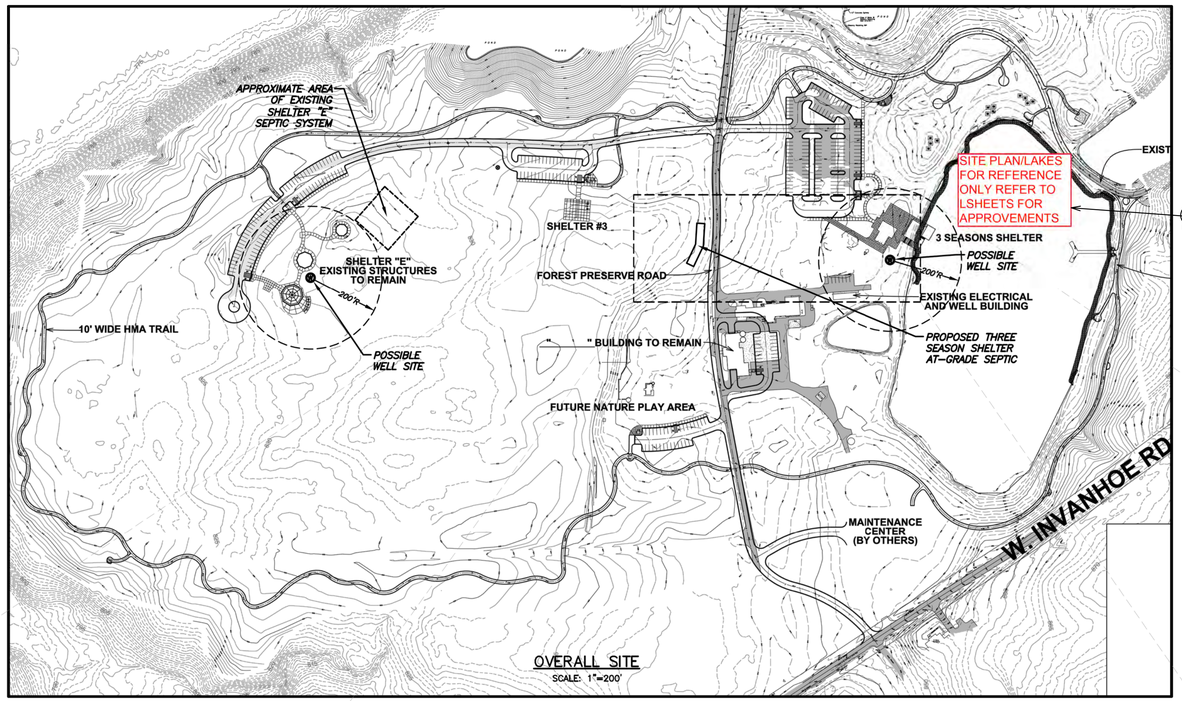
CLASS V INJECTION WELL NOTE

PROPOSED AT-GRADE SEPTIC SYSTEM WILL BE CONSIDERED CLASS V INJECTION WELLS BY THE ILLINOIS ENVIRONMENTAL PROTECTION AGENCY. AS A RESULT, ALL POTABLE WATER WELLS WILL REQUIRE A 200' MINIMUM SETBACK FROM THE TREATMENT AREAS (AREA OF #8 STONE) OF THE PROPOSED AT-GRADE SEPTIC SYSTEM.

CLASS 1 AEROBIC TREATMENT UNITS NOTE

THE INSTALLER AND/OR HIS SUPPLIER SHALL BE TOTALLY RESPONSIBLE FOR THE OPERATION OF AEROBIC TREATMENT UNIT AND EFFLUENT QUALITY. A SERVICE CONTRACT FOR THE CONTINUING EFFECTIVE OPERATION OF THE UNIT SHALL BE CONSUMMATED BETWEEN THE VENDOR AND THE OWNER.

LOCATION MAP
COURTESY OF LAKE COUNTY MAPPING



OVERALL SITE
SCALE: 1"=200'

LEGEND

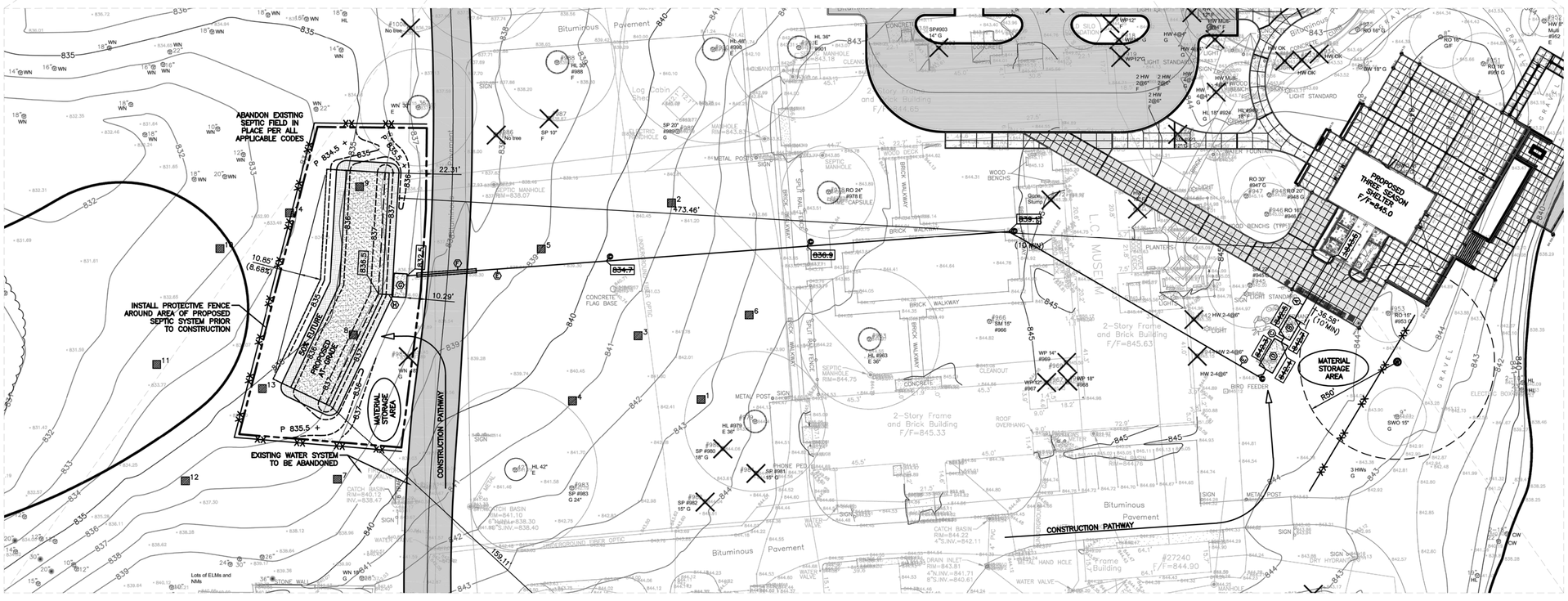
- = PROPOSED PIPE INVERT ELEVATION
- = SOIL BORING
- = PROPOSED FINISH CONTOUR
- = EXISTING CONTOUR
- + 000.0 P = PROPOSED SPOT GRADE
- XX XX = PROPOSED SILT FENCE
- Ⓒ = CLEAN-OUT
- Ⓦ = WELL

05/23/23 ADDED NOTE PER LCSMC REVIEW

- Ⓐ = 36.5 L.F. 4"ø SCH 40 PVC @ 2.0% MINIMUM
- Ⓑ = 1,500 GALLON SEPTIC TANK (TRASH) WITH NSF/ANSI APPROVED EFFLUENT FILTER INSTALLED AT OUTLET
- Ⓒ = 3 L.F. 4"ø SCH 40 PVC @ 1.0% MINIMUM
- Ⓓ = 3,000 GALLON PER DAY CLASS 1 AEROBIC TREATMENT UNIT (SIZED TO PROVIDE MAXIMUM 450 GALLON PER HOUR FLOW) USE BIO-MICROBICS MicroFAST 3.0 FAST UNIT INSTALLED IN A 3,000 GALLON MINIMUM TANK BY GROVE CONCRETE
- Ⓔ = 463 L.F. 4"ø SCH 40 PVC @ 1.0% MINIMUM W/CLEANOUTS
- Ⓕ = 30 L.F. 6"ø SCH 40 PVC SLEEVE OVER 4"ø PIPE UNDER ROADWAY
- Ⓖ = 2,600 GALLON LIFT STATION (SEE DETAIL)
- Ⓗ = 15 L.F. 2"ø SCH 40PVC FORCE MAIN

DESIGN CRITERIA

FOREST PRESERVE SHELTER W/O KITCHEN
10 EMPLOYEES @ 15 GPD = 150 GPD
270 PATRONS @ 5 GPD = 1,350 GPD
TOTAL DAILY FLOW = 1,500 GPD
SOIL LOADING RATE = 0.50 GAL/SQ.FT.
SOIL LOADING RATE = 0.60 GAL/SQ.FT. WITH AEROBIC
SOIL GROUP "B" SOILS
LIMITING LAYER @ 16" MIN
AT-GRADE PROPOSED
PROPOSED SYSTEM SIZED FOR 1,500 GALLONS PER DAY



SPECIAL NOTE

"THIS DESIGN IS NOT FOR CONSTRUCTION UNLESS APPROVAL STAMP FROM COUNTY, VILLAGE, OR CITY REGULATORY DEPARTMENT IS AFFIXED HERETO"

SCALE: 1"=30'

Call Before You Dig
JULIE ILLINOIS ONE-CALL SYSTEM

LAMBERT & ASSOCIATES
933 W. LIBERTY DR
WHEATON, IL 60187
P: (630)653-6331
F: (630)653-6396
E: INFO@LAMBERTSURVEY.COM

CIVIL ENGINEERING AND LAND SURVEYING SERVICES

LAND TECHNOLOGY
980 E. OAK STREET #3
LAKE IN THE HILLS, IL 60156
P: (815)363-9200
F: (815)363-9223
E: LANDTECH@LT-PE.COM

ILLINOIS PROFESSIONAL DESIGN FIRM
No. 184-007260

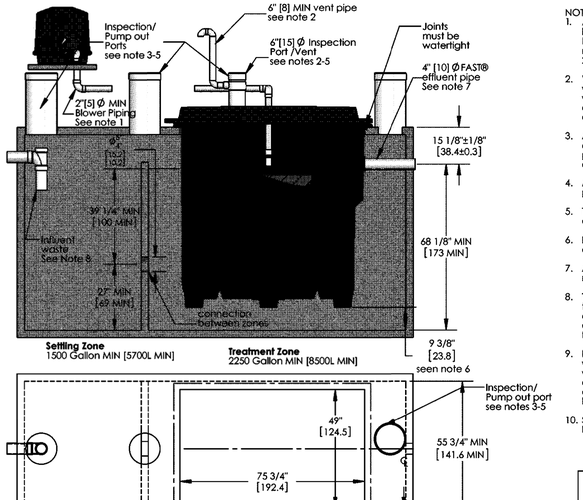
SEPTIC PLAN:
LAKEWOOD FOREST PRESERVE, WAUCONDA (UNINCORPORATED)
PIN: 10-30-300-003 & 10-30-400-006
CLIENT: PEARSON, BROWN & ASSOCIATES, INC

REVISIONS:

SCOTT L. FOX
062063638
LICENSED PROFESSIONAL ENGINEER
OF
ILLINOIS
EXPIRES
11/30/21

DRAWN BY: DRD
CHK'D BY: SSP
T:\2020-JOBS\200107\SEPTIC 6-9-21.dwg
DATE: 6/9/21

54
DRAWING NUMBER:
200107SP



NOTES
1. Airline piping to FAST® may not exceed 100 FT [30m] total length and have a maximum of 4 elbows in the piping system. For distances greater than 100 FT [30m] consult factory. Blower must be located above flood levels on a concrete base 42" X 28" X 2" [105 X 70 X 5cm] min.
2. Vent to desired location and cover opening with a vent grate with at least 20 sq in. [125 sq. cm] open surface area. Secure with stainless steel screws. Vent piping must not allow condensate build up or create back pressure. Vent must be above finished grade or higher (see sheet 4 of 4).
3. All oppurtenances to FAST® (e.g. tanks, access ports, electrical, etc.) must conform to all applicable country, state, province, and local plumbing and electrical codes. Pump out access shall be adequate to thoroughly clean out both zones.
4. All inspection, viewing and pump out ports must be secured to prevent accidental or unauthorized access.
5. Tank, piping, conduit, etc. are provided by others. Blower control system by Bio-Microbics, Inc. See Installation Manual.
6. If less than the specified minimums are considered necessary, consult factory for guidance.
7. All piping and ancillary equipment installed after FAST must not impede nor restrict free flow of effluent.
8. The tank(s) shall be designed to prevent air passage between the settling zone/tank and the treatment zone and preventing an air lock. Examples include a baffle wall sealed to the lid, and treatment zone inlet line with a pipe cap. Consult factory for guidance.
9. Installations using a FAST® system lid are capable of withstanding AASHTO H-10 equivalent loads. Any installation in which a FAST lid is buried deeper than 3 feet, or where additional loading conditions may occur, a professional engineer should be consulted. FAST® with feet option should be considered. Refer to Installation Manual for more details.
10. Specialized treatment levels may require specific features to be incorporated into the design. Consult factory for guidance.

DO NOT SCALE	BIO MICROBICS® BETTER WATER. BETTER WORLD.®			
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]	MicroFAST 3.00 FAST Unit			
WEIGHT lb	SIZE	DRAWING NUMBER		SHEET 1 OF 4
NAME / DATE	A	MicroFAST® 3.00 with lid		
DRAWN CTC 12/8/2006				
CHECKED PF 9/19/2013		REVISED 9/19/2013	REV. IN8-03-Y	

Specifications for MicroFAST 3.00 Wastewater Treatment System

1. GENERAL
The contractor shall furnish and install (1) MicroFAST® 3.00 treatment system as manufactured by Bio-Microbics, Inc. The treatment system shall be complete with all needed equipment as shown on the drawings and specified herein.

The principal items of equipment shall include FAST® system insert, leg extensions, or lid, blower assembly, blower controls and alarms. All other items will be provided by others.
The MicroFAST 3.00 unit shall be situated within a 2250 gallon (8500 L) minimum compartment as shown on the drawings. Suggested maximum settling zone is (1X) the daily flow. Tank must provide adequate pump out access and conform to local, state, and all other applicable codes. The contractor shall provide coordination between the FAST system and tank supplier with regard to fabrication of the tank, installation of the FAST unit and delivery to the job site.

2. OPERATING CONDITIONS
The MicroFAST 3.00 treatment system shall be capable of treating the wastewater produced by typical family activities (bath, laundry, kitchen, etc.) ranging from (10) ten to (42) forty-two people and not to exceed 3000 US Gallons per day (11400 LPD) provided the waste contains nothing that will interfere with biological treatment. The FAST system is a biological treatment system not meant for non-biodegradable or industrial wastewater.

3. MEDIA
The FAST media shall be manufactured of rigid PVC, polyethylene, or polypropylene and it shall be supported by the polyethylene insert. The media shall be fixed in position and contain no moving or wearing parts and shall not corrode. The media shall be designed and installed to ensure that sloughed solids descend through the media to the bottom of the septic tank.

4. BLOWER
The MicroFAST 3.00 unit shall come equipped with a regenerative type blower capable of delivering 44-85 CFM [68-90 m3/hr] The blower assembly shall include an inlet filter with metal filter element. Blower piping to the tank shall use non-corrosive material (PVC, Galvanized, or Stainless Steel). Do not run galvanized pipe inside the treatment tank. Refer to Installation Manual for further details.

5. REMOTE MOUNTED BLOWER
The blower must not set in standing water and its elevation must be higher than the normal flood level. A two-piece, rectangular housing shall be provided. The discharge air line from the blower to the MicroFAST System, shall be provided and installed by the contractor.

6. ELECTRICAL
The electrical source should be within 150 feet [45 meters] of the blower, consult local codes for longer wiring distances. All wiring must conform to all applicable codes(IEC, NEC, etc.). Wiring distances must prevent significant voltage loss. Input power on 60Hz electrical systems 220VAC, 1Ø, 10.6 FLA; 220/460VAC, 3Ø, 4.9/2.5 FLA on 50 Hz electrical systems 220VAC, 1Ø, 12 FLA, 230/380VAC, 3Ø, 6.1/3.5 FLA. Other voltages and phase are also available. Actual power consumption varies with site conditions. All conduit and wiring shall be supplied by contractor.

7. CONTROLS
The control panel provides power to the blower with an alarm system consisting of a visual and audible alarm capable of signaling blower circuit failure and high water conditions. The control panel is equipped with SFR® (Sequencing Fixed Reactor) timed control feature. A manual silence button is included.

8. INSTALLATION AND OPERATING INSTRUCTIONS
All work must be done in accordance with local codes and regulations. Installation of the MicroFAST 3.00 shall be done in accordance with the written instructions provided by the manufacturer. Manuals shall be furnished, which will include a description of system installation, operation, and maintenance procedures.

9. FLOW AND DOSING
FAST systems have been successfully designed, tested and certified receiving gravity, demand-based influent flow. When influent flow is controlled by pump or other means to help with highly variable flow conditions, then multiple dosing events should be used to maximize performance. The flow rate shall not exceed 15 gpm (57 Lpm) with a maximum hourly flow not to exceed 10% of the design daily flow (450 gph (1700LPH)).

10. WARRANTY
Bio-Microbics, Inc. warrants all new MicroFAST® models (MicroFAST® 3.0, 4.5, and 9.0) against defects in materials and workmanship for a period of one year after installation or eighteen (18 months) from the date of shipment which ever occurs first, subject to the following terms and conditions: All are subject to the following terms and conditions below:

During the warranty period, if any part is defective or fails to perform as specified when operating at design conditions, and if the equipment has been installed and is being operated and maintained in accordance with the written instructions provided by Bio-Microbics, Inc., Bio-Microbics, inc. will repair or replace at its discretion such defective parts free of charge. Defective parts must be returned by owner to Bio-Microbics, Inc.'s factory postage paid, if so requested. The cost of labor and all other expenses resulting from replacement of the defective parts and from installation of parts furnished under this warranty and regular maintenance items such as filters or bulbs shall be borne by the owner. This warranty does not cover general system misuse, aerator components which have been damaged by flooding or any components that have been disassembled by unauthorized persons. Improperly installed or damaged due to altered or improper wiring or overload protection. This warranty applies only to the treatment plant and does not include any of the structure wiring, plumbing, drainage, septic tank or disposal system. Bio-Microbics, Inc. reserves the right to revise, change or modify the construction and/or design of the FAST system, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in present equipment. Bio-Microbics, Inc. is not responsible for consequential or incidental damages of any nature resulting from such things as, but not limited to, defect in design, material, or workmanship, or delays in delivery, replacements or repairs.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES EXPRESS OR IMPLIED, BIO-MICROBICS SPECIFICALLY DISCLAIMS ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

NO REPRESENTATIVE OR PERSON IS AUTHORIZED TO GIVE ANY OTHER WARRANTY OR TO ASSUME FOR BIO-MICROBICS, INC., ANY OTHER LIABILITY IN CONNECTION WITH THE SALE OF ITS PRODUCTS. Contact your local distributor for parts and service.

DO NOT SCALE	BIO MICROBICS® BETTER WATER. BETTER WORLD.®			
UNLESS NOTED DIMENSIONS ARE IN INCHES [CENTIMETERS] TOLERANCES ± 0.02 IN/IN [± 0.05 CM/CM]	MicroFAST 3.00 FAST Unit			
WEIGHT lb	SIZE	DRAWING NUMBER		SHEET 3 OF 4
NAME / DATE	A	MicroFAST® 3.00 Specifications		
DRAWN CTC 12/8/2006				
CHECKED PF 9/19/2013		REVISED 9/19/2013	REV. IN8-03-Y	

AT-GRADE DESIGN WORKSHEET (SLOPING SITE)

A. SITE AND SOIL INFORMATION

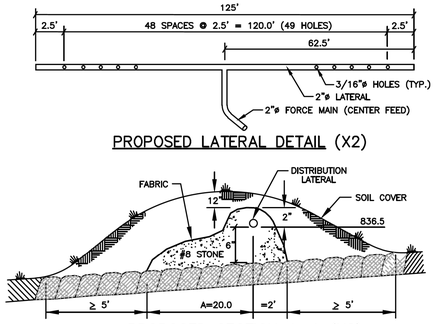
1. DEPTH TO LIMITING LAYER = 16 INCHES MIN 1.33 FEET
2. SLOPE IN SYSTEM AREA = 4 %
3. DISTANCE FROM PUMP CHAMBER TO DISTRIBUTION NETWORK = 15 FEET
4. ELEVATION HEAD (LATERALS TO PUMP BASE) =
   836.5 - 828.1 = 8.4 FEET

B. SYSTEM CONFIGURATION

1. DESIGN FLOW RATE — NO. OF BEDROOMS = RESIDENTIAL = GPD; COMMERCIAL = 1500 GPD
2. SOIL LOADING RATE (SLR) = 0.60 GALS./S.F./DAY (0.50 SLR WITH AEROBIC)
3. LINEAR LOADING RATE (LLR) = 12.0 GALS/FT.
4. DETERMINE ABSORPTION WIDTH (A) = LLR/SLR = 20.00 FT.
   NOTE: TOTAL WIDTH IS 2 FT. WIDER INCLUDING UPSLOPE WIDTH. = 22.00 FT.
5. DETERMINE ABSORPTION LENGTH (B) = DESIGN FLOW/ LLR = 125.00 FT.
6. VERTICAL DIMENSIONS OF THE SYSTEM (MINIMUM)
   F = DEPTH OF AGGREGATE BED = 10 INCHES = 0.83 FT.
   H = DEPTH OF SOIL COVER OVER PIPE 12 INCHES = 1.00 FT.
7. OVERALL LENGTH (L) AND WIDTH (W) OF SYSTEM
   L = B + 5 + 5 = 135.0 FT.
   W = A + 2 + 5 + 5 = 32.0 FT.

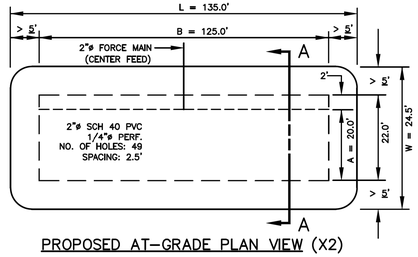
C. PRESSURE DISTRIBUTION NETWORK DESIGN (One distribution pipe, 1 lateral)

1. SELECT IN-LINE PRESSURE = 1.5 FT.
2. NUMBER OF LATERALS = 1
3. LATERAL LENGTH (CENTER FEED) = 125 FT.
4. SELECT PERFORATION DIAMETER AND SPACING = PERFORATION DIAMETER = 1/4 INCHES; SPACING = 2.5 FT.
5. DETERMINE LATERAL PIPE DIAMETER (1- 1/4" MIN.) 2.00 INCHES
6. HOLES PER LATERAL = 49
7. PERFORATION DISCHARGE RATE = 0.90 GPM
8. SYSTEM DISCHARGE RATE = 44.1 GPM
9. FORCE MAIN DIAMETER = 2.0 INCHES FRICTION LOSS = 3.2
10. FORCE MAIN FRICTION LOSS = 15 /100 FT. = 0.5 FT.
11. TOTAL HEAD LOSS (TDH) IN-LINE PRESSURE + VERTICAL LIFT + FRICTION LOSS
    1.5 + 8.4 + 0.5 = 10.4 FT.
12. MINIMUM DOSING VOLUME MIN. = 10 TIMES LATERAL VOLUME PLUS FORCE MAIN VOLUME
    LATERAL VOLUME = 125.0 FT. X 0.164 GAL/FT.= 20.5 GALS.
    FORCE MAIN VOLUME = 15.0 FT. X 0.164 GAL/FT.= 2.5 GALS.
    MINIMUM DOSE = 207 GALS.
13. SELECT A SEPTIC EFFLUENT PUMP TO PUMP 44.1 GPM @ 10.4 TDH
14. SET FLOATS IN LIFT STATION
    A 2600 GALLON LIFT STATION = 556 GALS. PER FOOT OF DEPTH
    SET FLOATS AT 0.4 FT.

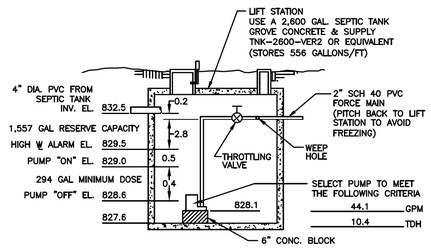


PROPOSED LATERAL DETAIL (X2)

PROPOSED SECTION A–A (X2)

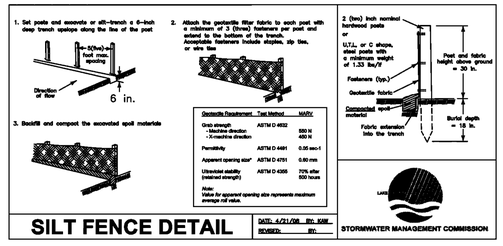


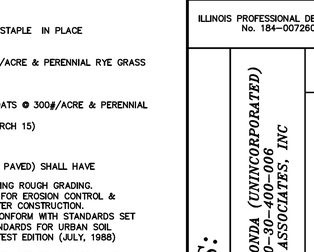
PROPOSED AT–GRADE PLAN VIEW (X2)



LIFT PUMP TO HAVE A QUICK DISCONNECT IN THE FORM OF A THREADED UNION ON THE DISCHARGE PIPING, A CORROSION RESISTANT ROPE INSTALLED TO FACILITATE EASY REMOVAL OF THE PUMPS, AN ACCESS RISER EXTENDING 6" ABOVE FINAL GRADE AND AN AUDIBLE/VISUAL ALARM.

PROPOSED LIFT STATION DETAIL





LAKE COUNTY STORMWATER MANAGEMENT COMMISSION
SOIL EROSION AND SEDIMENT CONTROL CONSTRUCTION NOTES

A. SEDIMENT CONTROL MEASURES SHALL BE INSTALLED PRIOR TO THE COMMENCEMENT OF HYDROLOGIC DISTURBANCE OF UPLAND AREAS.

B. FOR THOSE DEVELOPMENTS THAT REQUIRE A DESIGNATED EROSION CONTROL INSPECTOR (DECI), INSPECTIONS AND DOCUMENTATION SHALL BE PERFORMED, AT A MINIMUM:
- UPON COMPLETION OF SEDIMENT AND RUNOFF CONTROL MEASURES (INCLUDING PERIMETER CONTROLS AND DIVERSIONS), PRIOR TO PROCEEDING WITH ANY OTHER EARTH DISTURBANCE OR GRADING.
- AFTER EVERY SEVEN (7) CALENDAR DAYS OR STORM EVENT WITH GREATER THAN 0.5 INCH OF RAINFALL OR LIQUID EQUIVALENT PRECIPITATION.

C. SOIL DISTURBANCE SHALL BE CONDUCTED IN SUCH A MANNER AS TO MINIMIZE EROSION. IF STRIPPING, CLEARING, GRADING, OR LANDSCAPING ARE TO BE DONE IN PHASES, THE PERMITTEE SHALL PLAN FOR APPROPRIATE SOIL EROSION AND SEDIMENT CONTROL MEASURES.

D. A STABILIZED MAT OF CRUSHED STONE MEETING IDOT GRADATION CA-1 UNDERLAIN WITH FILTER FABRIC AND IN ACCORDANCE WITH THE ILLINOIS URBAN MANUAL, OR OTHER APPROPRIATE MEASURE(S) AS APPROVED BY THE ENFORCEMENT OFFICER, SHALL BE INSTALLED AT ANY POINT WHERE TRAFFIC WILL BE ENTERING OR LEAVING A CONSTRUCTION SITE. SEDIMENT OR SOIL REACHING AN IMPROVED PUBLIC RIGHT-OF-WAY, STREET, ALLEY OR PARKING AREA SHALL BE REMOVED BY SCRAPING OR STREET CLEANING AS ACCUMULATIONS WARRANT AND TRANSPORTED TO A CONTROLLED SEDIMENT DISPOSAL AREA.

E. TEMPORARY DIVERSIONS SHALL BE CONSTRUCTED AS NECESSARY TO DIRECT ALL RUNOFF FROM HYDROLOGICALLY DISTURBED AREAS TO AN APPROPRIATE SEDIMENT TRAP OR BASIN.

F. DISTURBED AREAS SHALL BE STABILIZED WITH TEMPORARY OR PERMANENT MEASURES WITHIN SEVEN (7) CALENDAR DAYS FOLLOWING THE END OF ACTIVE HYDROLOGIC DISTURBANCE OR REDISTURBANCE.

G. ALL STOCKPILES SHALL HAVE APPROPRIATE MEASURES TO PREVENT EROSION. STOCKPILES SHALL NOT BE PLACED IN FLOOD PRONE AREAS OR WETLANDS AND DESIGNATED BUFFERS.

H. SLOPES STEEPER THAN 3H:1V SHALL BE STABILIZED WITH APPROPRIATE MEASURESAS APPROVED BY THE ENFORCEMENT OFFICER.

I. APPROPRIATE EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL INTERIOR DETENTION BASIN SIDE SLOPES BETWEEN THE NORMAL WATER LEVEL AND HIGH WATER LEVEL.

J. STORM SEWERS THAT ARE OR WILL BE FUNCTIONING DURING CONSTRUCTION SHALL BE PROTECTED BY AN APPROPRIATE SEDIMENT CONTROL MEASURE.

K. IF DEWATERING SERVICES ARE USED, ADJOINING PROPERTIES AND DISCHARGE LOCATIONS SHALL BE PROTECTED FROM EROSION AND SEDIMENTATION. DISCHARGES SHALL BE ROUTED THROUGH AN APPROVED ANIONIC POLYMER DEWATERING SYSTEM OR A SIMILAR MEASURE AS APPROVED BY THE ENFORCEMENT OFFICER. DEWATERING SYSTEMS SHOULD BE INSPECTED DAILY DURING OPERATIONAL PERIODS. THE ENFORCEMENT OFFICER, OR APPROVED REPRESENTATIVE, MUST BE PRESENT AT THE COMMENCEMENT OF DEWATERING ACTIVITIES.

L. IF INSTALLED SOIL EROSION AND SEDIMENT CONTROL MEASURES DO NOT MINIMIZE SEDIMENT LEAVING THE DEVELOPMENT SITE, ADDITIONAL MEASURES SUCH AS ANIONIC POLYMERS OR FILTRATION SYSTEMS MAY BE REQUIRED BY THE ENFORCEMENT OFFICER.

M. ALL TEMPORARY AND PERMANENT EROSION CONTROL MEASURES MUST BE MAINTAINED AND REPAIRED AS NEEDED. THE PROPERTY OWNER SHALL BE ULTIMATELY RESPONSIBLE FOR MAINTENANCE AND REPAIR.

N. ALL TEMPORARY SEDIMENT CONTROL MEASURES SHALL BE REMOVED WITHIN 30 DAYS AFTER FINAL SITE STABILIZATION IS ACHIEVED OR AFTER THE TEMPORARY MEASURES ARE NO LONGER NEEDED.

O. THE EROSION CONTROL MEASURES INDICATED ON THE PLANS ARE THE MINIMUM REQUIREMENTS. ADDITIONAL MEASURES MAY BE REQUIRED, AS DIRECTED BY THE ENGINEER, ENFORCEMENT OFFICER, OR OTHER GOVERNING AGENCY.

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SPECIAL NOTES

THIS DESIGN IS BASED UPON (1) THE FIELD CONDITIONS AS THEY WERE ON THE DAY THE PERCOLATION TEST OR SOIL TYPING, AND/OR TOPOGRAPHIC INFORMATION WERE OBTAINED, AND (2) DATA FURNISHED BY THE OWNER, OR GENERAL CONTRACTOR, OR THEIR REPRESENTATIVE – REGARDING BUILDING SIZE, NUMBER OF BEDROOMS, AND/OR PEOPLE WITHIN THE UNIT TO BE SERVED.

ANY DEVIATIONS FROM THESE DESIGN CONDITIONS SUCH AS (1) CHANGING THE NUMBER OF BEDROOMS, AND/OR PEOPLE TO BE SERVED, (2) REDUCING THE PERCOLATION CAPACITY OF THE SOILS–BY RUNNING HEAVY EQUIPMENT OVER, OR STOCK PILING BUILDING MATERIAL OR EXCAVATED SOIL ON THE SEEPAGE FIELD AREA, (3) REDUCING THE EFFECTIVE SEEPAGE FIELD BY – SIGNIFICANTLY CHANGING, ACTUALLY REDUCING, OR COVERING THE SEEPAGE FIELD WITH PAVEMENT (4) DIVERTING GROUND WATER INTO OR OVER THE SEEPAGE FIELD, OR (5) INTRODUCING OILS AND/OR GREASES INTO THE SEEPAGE FIELD– WILL VOID THIS DESIGN.

GENERAL NOTES

1. THE CONTRACTOR SHALL NOTIFY ALL UTILITY COMPANIES AND HAVE ALL EXISTING UTILITY INSTALLATIONS LOCATED AND STAKED PRIOR TO CONSTRUCTION.
2. ALL BACKFILL USED FOR THE SEEPAGE FIELD TRENCHES SHALL BE POROUS TOPSOIL CONTAINING LITTLE OR NO CLAY.
3. THE CONTRACTOR SHALL VERIFY ALL EXISTING FIELD CONDITIONS SUCH AS WELL LOCATIONS, HOUSE AND ANY EXISTING SEPTIC FIELD LOCATIONS, ALL ELEVATIONS PRIOR TO INITIATING ANY CONSTRUCTION.
4. ALL DOWNSPOUTS, SUMP PUMP, WATER SOFTENER DISCHARGE, AND CONDENSATE LINES SHALL DISCHARGE AWAY FROM THE SEEPAGE FIELD OR INTO A CURTAIN DRAIN.
5. ALL INSTALLATIONS SHALL CONFORM TO THE APPROPRIATE REGULATORY AGENCY REQUIREMENTS.
6. PRIOR TO THE START OF ANY BUILDING CONSTRUCTION ACTIVITY A TEMPORARY FENCE SHALL BE CONSTRUCTED AROUND THE PROPOSED SEEPAGE FIELD AREA. THIS IS REQUIRED BY ORDINANCE, AND FAILURE TO COMPLY, MAY BE CAUSE FOR REVOCATION OF THE BUILDING PERMIT.
7. THE SEPTIC CONTRACTOR SHALL CONTACT LAKE COUNTY HEALTH DEPT. 24 HRS. IN ADVANCE OF INITIATING CONSTRUCTION.
8. SEEPAGE FIELD CONSTRUCTION, OR PLACING OF TOPSOIL IS NOT PERMITTED UPON WET OR FROZEN GROUND.
9. NO LAWN IRRIGATION SYSTEMS SHALL BE INSTALLED WITHIN 25 FT. OF THE SEPTIC FIELD AREA.
10. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY LOT CORNER LOCATIONS AND EXISTENCE OF ANY EASEMENTS.
11. ALL TREES WITHIN 10 FEET OF ANY PROPOSED SEPTIC LATERAL SHALL BE ROOT PRUNED PRIOR TO ANY SEPTIC SYSTEM CONSTRUCTION.

GENERAL SEEDING SPECIFICATIONS:

ALL DISTURBED AREAS SHALL BE GRADED & SEEDED AS FOLLOWS:
1) SCARIFY SUBSOIL TO A DEPTH OF 4"
2) SPREAD TOPSOIL 4" THICK
3) FERTILIZE WITH N9–P18–K9
4) FINAL RAKING
5) SEED APPLICATION
6) APPLY STRAW @ 2 TONS/ACRE
7) ALL SLOPES OVER 5:1
   PLACE 1" x 2" NYLON MESH OVER STRAW – STAPLE IN PLACE
8) PERMANENT SEEDING
   A) FERTILIZE @ 130#/ACRE
   B) SEED WITH KENTUCKY BLUEGRASS @ 90#/ACRE & PERENNIAL RYE GRASS @ 40#/ACRE
9) TEMPORARY SEEDING
   A) FERTILIZE @ 60#/ACRE
   B) SEED WITH CEREAL RYE @ 300#/ACRE, OATS @ 300#/ACRE & PERENNIAL RYE @ 30#/ACRE
10) DORMANT SEEDING (NOVEMBER 1 through MARCH 15)
   A) INCREASE SEEDING APPLICATION BY 50%

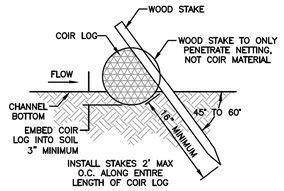
NOTES:
1) ALL DISTURBED AREAS (EXCEPT THOSE TO BE PAVED) SHALL HAVE TEMPORARY SEED & MULCH APPLIED IMMEDIATELY FOLLOWING ROUGH GRADING.
2) THE OWNER SHALL BE TOTALLY RESPONSIBLE FOR EROSION CONTROL & DETENTION MEASURES BEFORE, DURING & AFTER CONSTRUCTION.
3) EROSION CONTROL & CONSTRUCTION SHALL CONFORM WITH STANDARDS SET FORTH BY THE "ILLINOIS PROCEDURES & STANDARDS FOR URBAN SOIL EROSION & SEDIMENT CONTROL" MANUAL, LATEST EDITION (JULY, 1988)
4) DUST & TRAFFIC CONTROL
   IT SHALL BE THE RESPONSIBILITY OF THE DEVELOPER TO MINIMIZE DUST BLOWING FROM THE CONSTRUCTION SITE. IF DUST BEGINS BLOWING FROM THE SITE ALL ROADWAYS SHALL BE TREATED WITH A DUST CONTROL BINDER (CURASOL TERRATACK OR EQUAL). APPLY AS NEEDED ACCORDING TO MANUFACTURE DIRECTIONS.
5) BARRIER FILTER PLACEMENT DETAIL:
   A) MAINTAIN DETENTION BARRIER, SWALE & STRUCTURE FILTERS UNTIL AN ACCEPTABLE STAND OF GRASS IS ESTABLISHED UPSTREAM.
   B) AFTER REMOVAL OF FILTERS PLACE SOD AROUND STRUCTURES.

SOIL PROTECTION CHART

STABILIZATION TYPE	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
PERMANENT SEEDING			A			*	*					
DORMANT SEEDING	B	→								B		
TEMPORARY SEEDING			C				D**					
SODDING			E**									
MULCHING	F											

A. KENTUCKY BLUEGRASS 90LBS/AC. MIXED WITH PERENNIAL RYEGRASS 30LBS/AC.
B. KENTUCKY BLUEGRASS 135LBS/AC. MIXED WITH PERENNIAL RYEGRASS 45LBS/AC. + 2 TONS STRAW MULCH PER AC.
C. SPRING OATS 100LBS/AC.
D. WHEAT OR CEREAL RYE 150LBS/AC.
E. SOD
F. STRAW MULCH 2 TONS/AC.

* IRRIGATION NEEDED DURING JUNE, JULY AND SEPTEMBER ** IRRIGATION NEEDED FOR 2–3 WEEKS AFTER SODDING



COIR LOG DETAIL

SPECIAL NOTE

"THIS DESIGN IS NOT FOR CONSTRUCTION UNLESS APPROVAL STAMP FROM COUNTY, VILLAGE, OR CITY REGULATORY DEPARTMENT IS AFFIXED HERETO"

LAND TECHNOLOGY
980 E. OAK STREET #3
LAKE IN THE HILLS, ILLINOIS 60156
AND/OR
LAMBERT & ASSOCIATES
933 W. LIBERTY DRIVE
WHEATON, ILLINOIS, 60187

JULIE
1–800–892–0123
Call 48 hours before you dig (Excluding Sat., Sun.(Holidays)

LAMBERT & ASSOCIATES
933 W. LIBERTY DR
WHEATON, IL 60187
P: (630)653–6331
F: (630)653–6396
E: INFO@LAMBERTSURVEY.COM

CIVIL ENGINEERING AND LAND SURVEYING SERVICES

LAND TECHNOLOGY
980 E. OAK STREET #3
LAKE IN THE HILLS, IL 60156
P: (815)363–9200
F: (815)363–9223
E: LANDTECH@LT–PE.COM

ILLINOIS PROFESSIONAL DESIGN FIRM
No. 184–007260

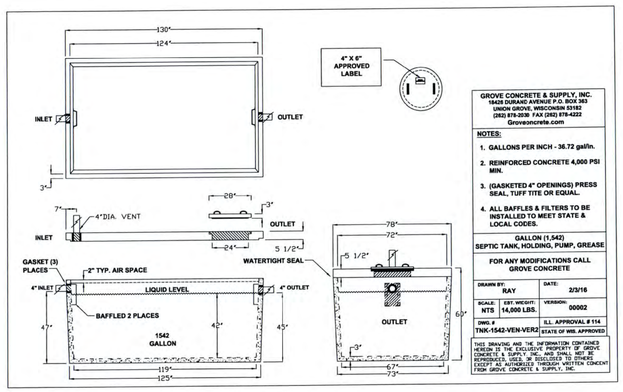
DETAILS:
LAKEWOOD FOREST PRESERVE, WAUCONDA (UNINCORPORATED)
PIN: 10–30–300–003 & 10–30–400–006
CLIENT: PEARSON, BROWN & ASSOCIATES, INC

REVISIONS:

SCOTT E. POPE
062036308
LICENSED PROFESSIONAL ENGINEER
OF ILLINOIS
EXPIRES 11/30/21

DRAWN BY: DRD
CHECKED BY: SSP
T:\2020–JOBS\200107\SEPTIC 6–9–21.dwg
DATE: 6/9/21

55
DRAWING NUMBER:
200107SP



4" X 6" APPROVED LABEL

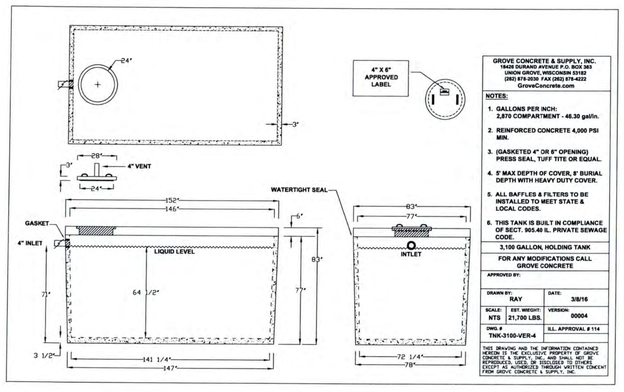
GROVE CONCRETE & SUPPLY, INC.
18428 DURAND AVENUE P.O. BOX 383
UNION GROVE, WISCONSIN 53182
(262) 878-3030 FAX (262) 878-4222
GroveConcrete.com

NOTES:

1. GALLONS PER INCH - 36.72 gal/in.
2. REINFORCED CONCRETE 4,000 PSI MIN.
3. (GASKETED 4" OPENINGS) PRESS SEAL, TUFF TITE OR EQUAL.
4. ALL BAFFLES & FILTERS TO BE INSTALLED TO MEET STATE & LOCAL CODES.

GALLON (1,542) SEPTIC TANK, HOLDING, PUMP, GREASE
FOR ANY MODIFICATIONS CALL GROVE CONCRETE

DRAWN BY: RAY	DATE: 2/3/16
SCALE: NTS	EST. WEIGHT: 14,000 LBS.
VERSION: 00002	
DWG. # TNK-1542-VEN-VER3	I.L.L. APPROVAL # 114
STATE OF WIS. APPROVED	



4" X 6" APPROVED LABEL

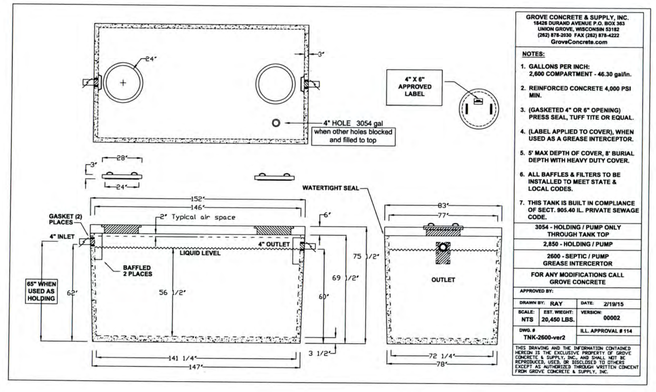
GROVE CONCRETE & SUPPLY, INC.
18428 DURAND AVENUE P.O. BOX 383
UNION GROVE, WISCONSIN 53182
(262) 878-3030 FAX (262) 878-4222
GroveConcrete.com

NOTES:

1. GALLONS PER INCH: 2,870 COMPARTMENT - 46.30 gal/in.
2. REINFORCED CONCRETE 4,000 PSI MIN.
3. (GASKETED 4" OR 6" OPENING) PRESS SEAL, TUFF TITE OR EQUAL.
4. 5' MAX DEPTH OF COVER, 8' BURIAL DEPTH WITH HEAVY DUTY COVER.
5. ALL BAFFLES & FILTERS TO BE INSTALLED TO MEET STATE & LOCAL CODES.
6. THIS TANK IS BUILT IN COMPLIANCE OF SECT. 905.40 IL. PRIVATE SEWAGE CODE.

3,100 GALLON, HOLDING TANK
FOR ANY MODIFICATIONS CALL GROVE CONCRETE

APPROVED BY:	
DRAWN BY: RAY	DATE: 3/8/16
SCALE: NTS	EST. WEIGHT: 21,700 LBS.
VERSION: 00004	
DWG. # TNK-3100-VER-4	I.L.L. APPROVAL # 114



4" X 6" APPROVED LABEL

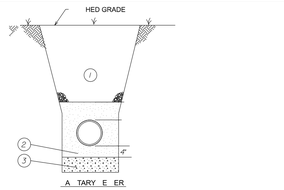
GROVE CONCRETE & SUPPLY, INC.
18428 DURAND AVENUE P.O. BOX 383
UNION GROVE, WISCONSIN 53182
(262) 878-3030 FAX (262) 878-4222
GroveConcrete.com

NOTES:

1. GALLONS PER INCH: 2,600 COMPARTMENT - 46.30 gal/in.
2. REINFORCED CONCRETE 4,000 PSI MIN.
3. (GASKETED 4" OR 6" OPENING) PRESS SEAL, TUFF TITE OR EQUAL.
4. (LABEL APPLIED TO COVER), WHEN USED AS A GREASE INTERCEPTOR.
5. 5' MAX DEPTH OF COVER, 8' BURIAL DEPTH WITH HEAVY DUTY COVER.
6. ALL BAFFLES & FILTERS TO BE INSTALLED TO MEET STATE & LOCAL CODES.
7. THIS TANK IS BUILT IN COMPLIANCE OF SECT. 905.40 IL. PRIVATE SEWAGE CODE.

3054 - HOLDING / PUMP ONLY THROUGH TANK TOP
2,850 - HOLDING / PUMP
2600 - SEPTIC / PUMP GREASE INTERCEPTOR
FOR ANY MODIFICATIONS CALL GROVE CONCRETE

APPROVED BY:	
DRAWN BY: RAY	DATE: 2/19/15
SCALE: NTS	EST. WEIGHT: 20,450 LBS.
VERSION: 00002	
DWG. # TNK-2600-ver2	I.L.L. APPROVAL # 114

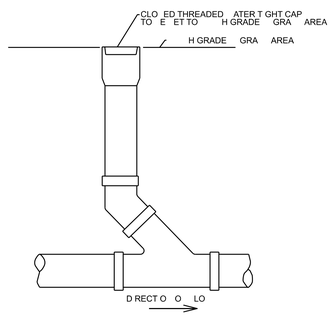


1 ACK LL
ECHA CALLY CO PACTED CA 6 OR CA 7. 6 CH L T DER OR TH 2 EET
O A Y PAVE E T C R G TTER A D DE ALK. ACH E CO PACT O O EXCAVATED ATER AL
OTHER LOCAT O HERE TA LE

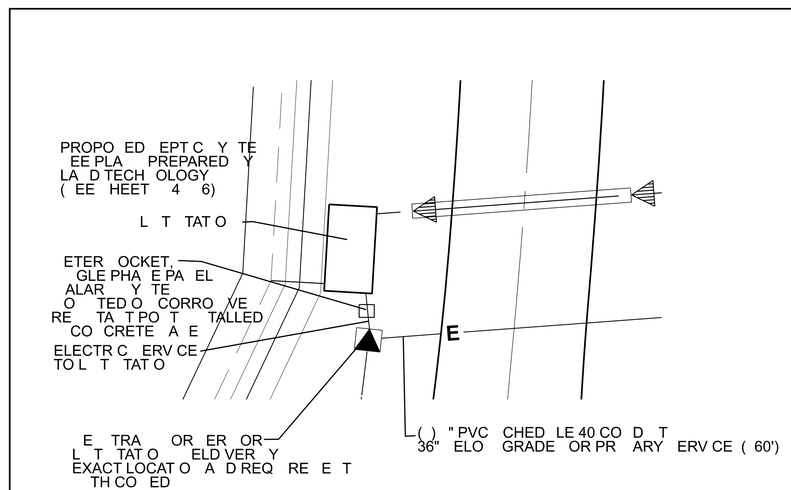
2 4" ED ECHA CALLY CO PACTED CA 6, CA 7 OR CA CR HED TO E
A TARY E ER PVC
CA 6 CR HED TO E TA PED TO PLACE TO 2" A OVE TOP O P PE
(EDD G CLA OR LEX LE P PE A PER A T 232 8)

3 TA LE ATER AL TO E RE OVED A D REPLACED

PIPE BEDDING AND TBF DETAIL



CLEANOUT DETAIL



LIFT STATION ELECTRICAL SERVICE DETAIL

LAKEWOOD PRESERVE
LAKE C U TY LL s

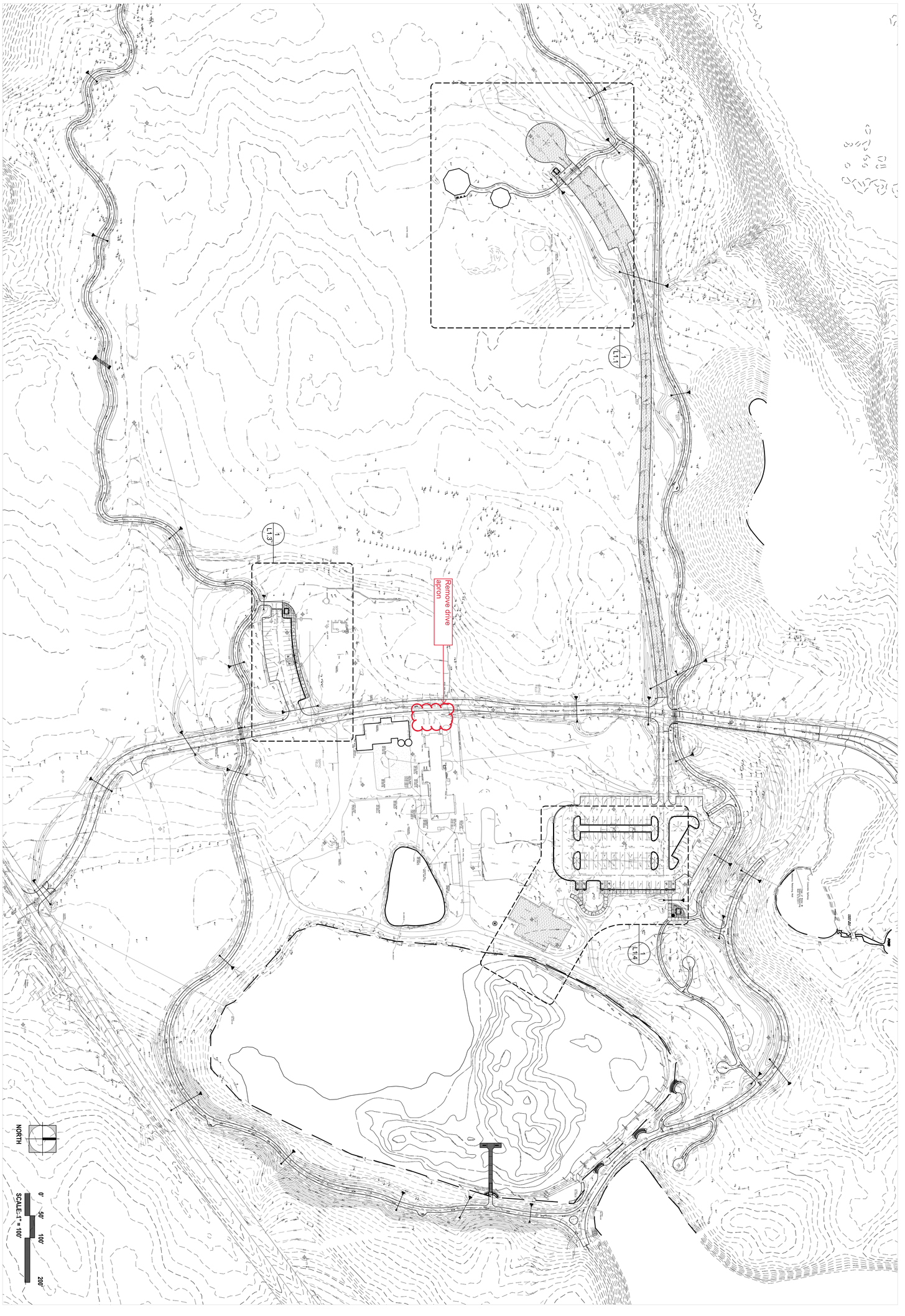
PEARS BR W ASS C ATES C
C SULT G E G EERS
1 50 W CHESTER AD SU TE 205
BOLING BROOK, IL 60440
PH (47) 367 8707
AX (47) 367 2567
E MA L ADDRESS pba@p ars nbr wn c m

DES G ED BY D.S.H.
DRAW BY A
CHECKED BY A.K.
R G AL SSUE 02.24.23

DESCR PT	DATE	BY
REV S S		

SEPT C PLA DETA LS

SHEET UMBER
56
56 SHEETS
J B 2036



LAYOUT AND MATERIALS PLAN - OVERALL

SHEET NUMBER L1.0

1 OF 27 SHEETS

JOB No. 2036

REVISIONS

DATE	BY	DESCRIPTION
09/25/23	BFM	ISSUE FOR CONSTRUCTION

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

DESIGNED BY: BFM

DRAWN BY: BFM

CHECKED BY: KK

ORIGINAL ISSUE: 00/00/00

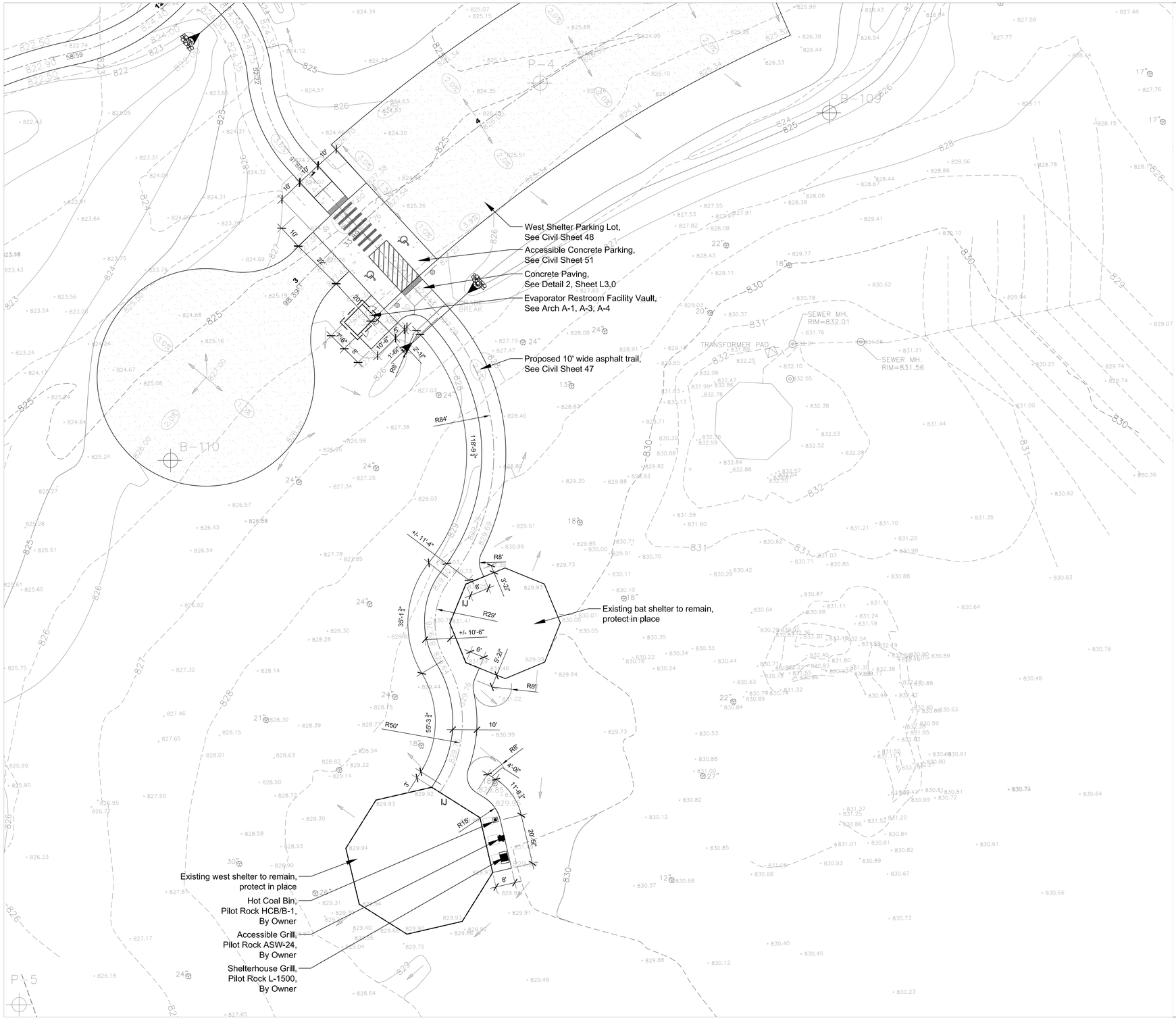
PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
1850 W. WINCHESTER ROAD - SUITE 205
LIBERTYVILLE, IL. 60048
PHONE: (847) 367-6707
FAX: (847) 367-2567
E-MAIL ADDRESS: pba@pearsonbrown.com

NORTH

10' 5' 0 10'

SCALE: 1" = 10' (24" x 36")

SCALE: 1" = 20' (11" x 17")



NOTES

1. See Civil Sheet 30 and 38 for additional information.
2. "By Owner" items are not in contract (NIC).
3. Recreation Facilities items are not in contract (NIC), including the Restroom Renovation.

LEGEND

- Concrete Paving - Standard Finish
  See Detail 2, Sheet L3.0
- Concrete Paving - Specialty Finish
  See Detail 2, Sheet L3.0
- Concrete Paving - 6" Depth
  See Detail 2, Sheet L3.0
- Thickened Edge Concrete
  See Detail 3, Sheet L3.0
- Isolation Joint
  See Detail 6, Sheet L3.0
- Expansion Joint
  See Detail 7, Sheet L3.0
- Tooled / Sawcut Control Joint
  See Detail 8 & 9, Sheet L3.0

NORTH

0' 10' 20' 40'
SCALE: 1" = 20'

NORTH
SCALE: 1" = 10' (24" x 36")
SCALE: 1" = 20' (11" x 17")

LAKEWOOD FOREST PRESERVE
LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
CONSULTING ENGINEERS
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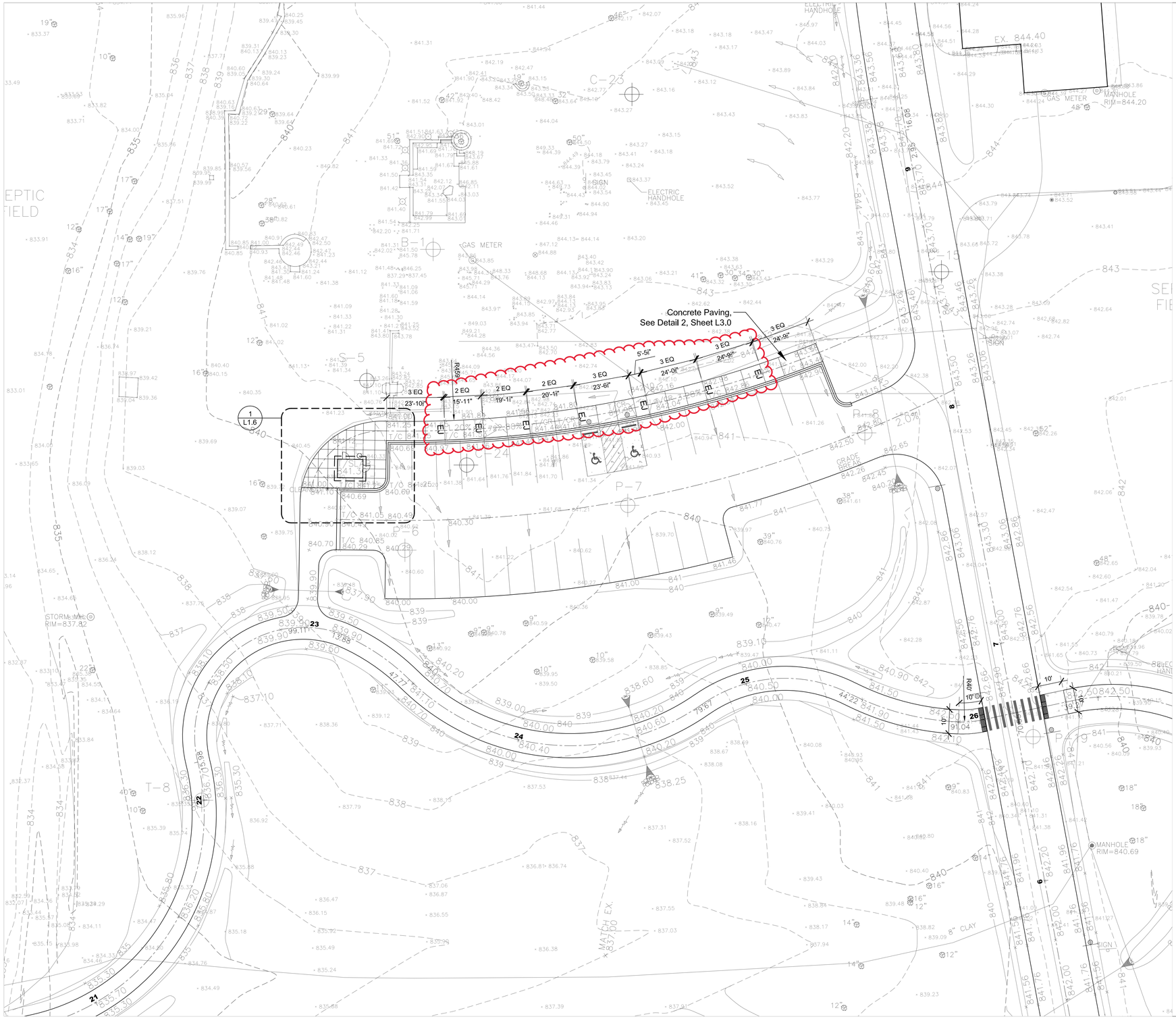
DESIGNED BY: BFM
DRAWN BY: BFM
CHECKED BY: KK
ORIGINAL ISSUE: 00/00/00

DESCRIPTION	DATE	BY
ISSUE FOR CONSTRUCTION	09/25/23	BFM

REVISIONS

L&M PLAN - WEST SHELTER

SHEET NUMBER
L1.1
JOB No. 2036
2 OF 27 SHEETS



NOTES

1. See Civil Sheet 35 for additional information.
2. "By Owner" items are not in contract (NIC).
3. Recreation Facilities items are not in contract (NIC).

LEGEND

- Concrete Paving - Standard Finish
  See Detail 2, Sheet L3.0
- Concrete Paving - Specialty Finish
  See Detail 2, Sheet L3.0
- Concrete Paving - 6" Depth
  See Detail 2, Sheet L3.0
- Thickened Edge Concrete
  See Detail 3, Sheet L3.0
- IJ — Isolation Joint
  See Detail 6, Sheet L3.0
- EJ — Expansion Joint
  See Detail 7, Sheet L3.0
- Tooled / Sawcut Control Joint
  See Detail 8 & 9, Sheet L3.0

NORTH

0' 10' 20' 40'
SCALE: 1" = 20'

NORTH
10' 0 10'
5'
SCALE: 1" = 10' (24" X 36")
SCALE: 1" = 20' (11" x 17")

LAKEWOOD FOREST PRESERVE

LAKE COUNTY, ILLINOIS

PEARSON,BROWN & ASSOCIATES,INC.
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DESIGNED BY: BFM
DRAWN BY: BFM
CHECKED BY: KK
ORIGINAL ISSUE: 00/00/00

DESCRIPTION	DATE	BY
ISSUE FOR CONSTRUCTION	09/25/23	BFM

REVISIONS

L&M PLAN - NATURE PLAY

SHEET NUMBER
L1.3
JOB No. 2036
4 OF 27 SHEETS