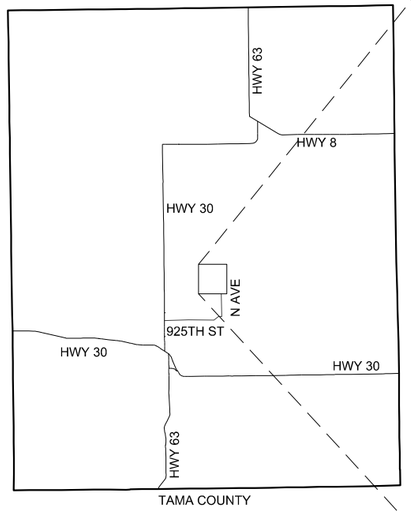
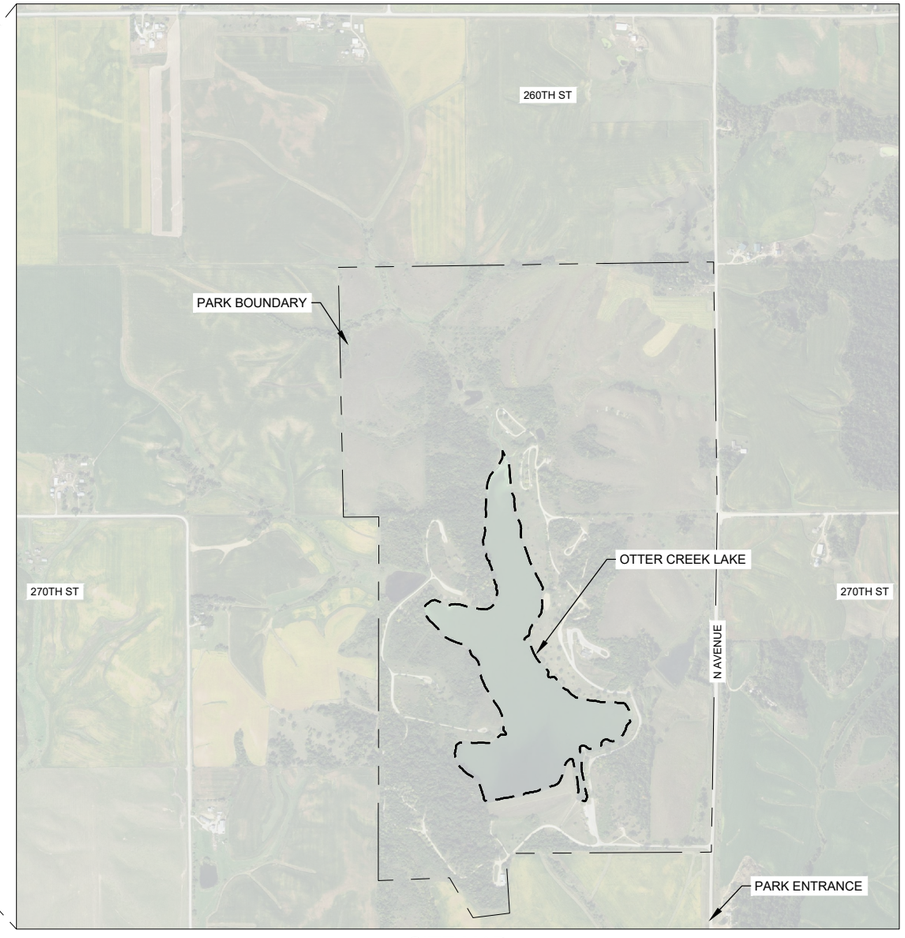
OTTER CREEK LAKE RESTORATION - PHASE 3

TAMA COUNTY CONSERVATION BOARD



LOCATION MAP



SITE MAP

SHEET INDEX

AUTHORIZATION TO BID

Digitally signed by George Antoniou
Date: 2021.09.22 09:00:29 -05'00'

AUTHORIZATION - PARKS | WILDLIFE | FISHERIES | LAW ENFORCEMENT | FORESTRY DATE

Travis Baker

Digitally signed by Travis Baker
Date: 2021.09.22 10:41:03 -05'00'

ENGINEERING BUREAU CHIEF DATE

LICENSED PROFESSIONAL ENGINEER
HEATH B. DELZELL
21074
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED UNDER MY SUPERVISION AND THAT ENGINEERING DECISIONS WITH REGARD TO THE DESIGN WERE MADE BY ME UNDER THE LAWS OF THE STATE OF IOWA.

Heath Delzell
SIGNATURE
Digitally signed by Heath Delzell
Date: 2021.09.21 09:27:31 -05'00'
DATE

HEATH B. DELZELL
PRINTED OR TYPED NAME

MY LICENCE RENEWAL DATE IS DECEMBER 31, 20 21

PAGES COVERED BY THIS SEAL: H.1

LICENSED PROFESSIONAL ENGINEER
MICHAEL K. SOTAK
16681
IOWA

I HEREBY CERTIFY THAT THIS ENGINEERING DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT PERSONAL SUPERVSION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF IOWA.

7.7.21
MICHAEL K. SOTAK DATE
LICENSE NO: 16681
MY LICENSE RENEWAL DATE IS: 12.31.22
PAGES OR SHEETS COVERED BY THIS SEAL:
ALL PAGES

IOWA DNR PROJECT # 21-05-86-02

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: CKW
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
COVER SHEET

SHEET
A.1

GENERAL NOTES:

1. THE LOCATIONS OF ALL AERIAL AND UNDERGROUND UTILITY FACILITIES ARE APPROXIMATE OR MAY NOT BE INDICATED IN THESE PLANS. UNDERGROUND FACILITIES, WHETHER INDICATED OR NOT, SHALL BE LOCATED AND FLAGGED BY THE CONTRACTOR AND UTILITY COMPANIES 48 HOURS BEFORE WORK IS STARTED. VERIFY UTILITY LOCATIONS BY CONTACTING THE IOWA ONE CALL (ONLINE AT WWW.IOWONECALL.COM AND/OR CALL 811). THE CONTRACTOR SHALL BE REQUIRED TO NOTIFY AND COORDINATE ALL NECESSARY UTILITY SERVICE INTERRUPTIONS WITH THE OWNERS. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO PROTECT ALL EXISTING UTILITIES, PAVEMENT, STRUCTURES, FENCES, POLES, SIGNS, TREES, IRRIGATION LINES, SPRINKLER HEADS, SUB- DRAINS AND OTHER IMPROVEMENTS NOT DESIGNATED FOR REMOVAL. ANY DAMAGE CAUSED BY THE CONTRACTOR'S OPERATIONS SHALL BE REPAIRED BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.
2. CONTOURS SHOWN ON THE PLANS ARE 2 FT CONTOURS FROM LIDAR & 2 FT CONTOUR BATHYMETRY FROM IDNR. ELEVATIONS CALLED OUT ON THE PLANS ARE REFERENCED TO NAVD 88 VERTICAL DATUM. HORIZONTAL CONTROL IS NAD83 IOWA STATE PLANE NORTH.
3. THE CONTRACTOR SHALL CONDUCT ALL OPERATIONS AND MAINTAIN CONSTRUCTION WORK AREA IN A SAFE MANNER IN ACCORDANCE WITH OSHA COMPLIANCE.
4. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ALL TEMPORARY MARKERS, LIGHTS, SIGNS, FLAGMEN, BARRICADES AND OTHER PROTECTIVE DEVICES TO PROVIDE ADEQUATE TRAFFIC CONTROL. THIS SHALL INCLUDE ANY BARRICADES OR SIGNS NECESSARY FOR PEDESTRIAN TRAIL CLOSURE.
5. ELECTRONIC GRADING FILES AND EXISTING UTILITIES AND WETLANDS CAN BE PROVIDED BY ENGINEER UPON REQUEST.
6. CONTRACTOR IS RESPONSIBLE FOR REPAIRING DAMAGE TO ROADS USED AS HAUL ROUTES. CONDITIONS PRIOR TO CONSTRUCTION TO BE DOCUMENTED BY THE CONTRACTOR AND MUST BE RESTORED TO ORIGINAL CONDITIONS BY SMOOTHING COMPACTED SOILS PRIOR TO FINISHED GRADING AND SEEDING WITH SPECIFIED MIX AND METHODS..
7. ACCESS ROUTES IDENTIFIED TO EACH SITE MUST BE STRICTLY ABIDED TO. CONTRACTOR MAY PROPOSE ALTERNATE ROUTES FOR APPROVAL BY FIELD ENGINEER PRIOR TO MOBILIZATION.
8. THE QUANTITIES SHOWN FOR SEEDING INCLUDE ALL NON-PAVED AREAS WITHIN THE LIMITS OF CONSTRUCTION AND DOES NOT ACCOUNT FOR ANY AREA THAT IS DISTURBED OUTSIDE THE LIMITS OF CONSTRUCTION. DISTURBED AREAS OUTSIDE THE LIMITS OF CONSTRUCTION MUST BE RESTORED, SEEDED, AND MULCHED AND WILL BE CONSIDERED INCIDENTAL TO THE PROJECT.
9. ALL DREDGED MATERIAL TO BE HAULED TO THE SPOILS SITE AND PLACED ACCORDING TO THE CONSTRUCTION SHEETS.
10. BORROW MATERIAL TO BE OBTAINED FROM EACH POND AS DESCRIBED ON PLAN SHEETS. COORDINATE WITH FIELD ENGINEER TO DETERMINE SUITABLE FILL MATERIAL. IF SUITABLE MATERIAL CANNOT BE OBTAINED ON SITE AS DESCRIBED, CONTRACTOR TO COORDINATE WITH FIELD ENGINEER.
11. CLEARING AND GRUBBING TO BE PERFORMED ONLY IN LOCATIONS NECESSARY TO CONSTRUCT/BORROW AND ACCESS THE SITE. CONTRACTOR SHALL LIMIT CONSTRUCTION OPERATIONS TO MINIMIZE CLEARING AND GRUBBING EXTENTS.
12. TREES/SHRUBS AND ANY UNUSABLE FILL MATERIAL EXCAVATED, TO OBTAIN BORROW, TO BE SPOILED ON SITE IN EXISTING TREED AREA OUTSIDE OF PROPOSED AREAS OF CONSTRUCTION OR PERMANENT POOL, UNLESS DIRECTED OTHERWISE ON PLAN SHEETS.
13. PROTECT BY WHATEVER MEANS REQUIRED ALL FENCES, SIGNS, STRUCTURES, DRIVES, SIDEWALKS, STREETS, BUSHES, TREES, ETC. SHOWN TD REMAIN OUTSIDE OR INSIDE THE LIMITS OF CONSTRUCTION.
14. THE OWNER SHALL RESERVE THE RIGHT TO SALVAGE ANY MATERIALS.
15. REPAIR OR REPLACE ITEMS THAT ARE DAMAGED AS A RESULT OF DEMOLITION OR CONSTRUCTION TO MATCH EXISTING CONDITIONS.
16. CONTRACTOR TO ATTEND THE PRE-CONSTRUCTION CONFERENCE WITH OWNER, ENGINEER, AND OTHER PROJECT STAKEHOLDERS.
17. RAMPS AND HAUL ROUTES THAT THE CONTRACTOR CONSTRUCTS FOR HAULING MATERIAL AND TRANSPORTING EQUIPMENT SHALL BE CONSIDERED INCIDENTAL TO MOBILIZATION.
18. OBTAINING NATIVE IN-LAKE MATERIAL SUITABLE FOR FILL TO BE COORDINATED WITH FIELD ENGINEER.
19. CONTRACTOR RESPONSIBLE FOR SETTING AND MAINTAINING TEMPORARY CONTROL POINTS REQUIRED FOR CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ALL SURVEY AND STAKING REQUIREMENTS. GPS FILES ARE AVAILABLE UPON REQUEST.
20. SALVAGE TREES 8" IN DIA OR GREATER AND HAUL TO BMP 6 TREE AREA. USE SALVAGED TREES FOR FISHERIES.

QUANTITIES - BID ALTERNATE

IN-LAKE DREDGING - BID ALTERNATE

ITEM	UNITS	ZONE 1	ZONE 5
DREDGE	CY	11,914	5,957

SHORELINE - BID ALTERNATE

ITEM	UNITS	QUANTITY
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	30
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - GEOGRID	SY	347
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - FLOODPLAIN SEED MIX	AC	0.1
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - WETLAND SEED MIX	AC	0.1
SHORELINE - SHALLOW EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	341
SHORELINE - SHALLOW EROSION PROTECTION - GRAVEL	CY	64
SHORELINE - SHALLOW EROSION PROTECTION - GRASS SEED MIX	AC	0.2
SHORELINE - MEDIUM EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	549
SHORELINE - MEDIUM EROSION PROTECTION - GRASS SEED MIX	AC	0.3

PERMITTING NOTES

1. NO TREE CLEARING PERMITTED BETWEEN APRIL 1 AND SEPTEMBER 30.
2. CONTRACTOR MUST DEVELOP ALL DOCUMENTATION REQUIRED TO APPLY FOR AND OBTAIN THE NPDES PERMIT GRANTED BY IOWA DEPARTMENT OF NATURAL RESOURCES. CONTRACTOR MUST ADHERE TO THE REQUIREMENTS OF THE NPDES PERMIT AND SWPPP (SHEET S.1). CONTRACTOR TO IMPLEMENT COVER CROP ON ALL DISTURBED AREAS IMMEDIATELY UPON COMPLETION OF GRADING OPERATIONS AT SITE IN ACCORDANCE WITH PROJECT SPECIFICATIONS.
3. CONTRACTOR MUST ADHERE TO THE REQUIREMENTS OF THE 404 PERMIT GRANTED BY THE UNTIED STATES ARMY CORPS OF ENGINEERS FOR THIS PROJECT. A COPY OF THE REQUIREMENTS WILL BE PROVIDED TO THE SELECTED CONTRACTOR, OR UPON REQUEST.
4. DELINEATED WETLANDS ARE SHOWN ON THE PLANS. CONTRACTOR SHALL LIMIT ALL CONSTRUCTION ACTIVITIES FROM ENCROACHING UPON WETLAND AREAS, EXCEPT LOCATIONS SPECIFICALLY DESIGNATED IN THE CONSTRUCTION DRAWINGS. WETLAND AREAS THAT ARE TEMPORARILY DISTURBED DUE TO CONSTRUCTION ACTIVITIES SHALL BE RESTORED AND RESEEDED WITH THE WETLAND SEEDING MIX AS DETAILED IN THE PROJECT SPECIFICATIONS.
5. AVOID WETLANDS UNLESS INDICATED ON SHEETS.

LEGEND

- EXISTING CONTOUR MINOR
- 700 EXISTING CONTOUR MAJOR
- PARK BOUNDARY LINE
- GAS GAS UTILITY LINE
- LP LP LIQUEFIED PETROLEUM UTILITY LINE
- OHP OHP OVERHEAD POWER UTILITY LINE
- FO FO FIBER OPTIC UTILITY LINE
- PARK TRAIL
- EXCAVATION EXTENTS
- SILT FENCE
- PARK FENCE
- LIMITS OF CONSTRUCTION
- ROCK RIPRAP
- EXISTING WETLANDS
- SLOPE LINE
- SAND
- GRAVEL
- EXCAVATION
- EARTH FILL
- STOCKPILE

ABBREVIATIONS

AC	- ACRES
CL	- CENTERLINE
CY	- CUBIC YARD
EL	- ELEVATION
FT	- FEET
MAX	- MAXIMUM
MIN	- MINIMUM
SY	- SQUARE YARD
SWPPP	- STORM WATER POLLUTION PREVENTION PLAN
TYP	- TYPICAL
EA	- EACH
TN	- TON
LS	- LUMP SUM
DIA	- DIAMETER
FES	- FLARED END SECTION
MFG	- MANUFACTURER

QUANTITIES

GENERAL

ITEM	UNITS	QUANIITY
MOBILIZATION	LS	1
CLEARING AND GRUBBING	LS	1
EROSION CONTROL (SWPPP)	LS	1
SURVEY	LS	1
SEEDING - GRASS SEED MIX	AC	14

BMP 5

ITEM	UNITS	QUANIITY
BMP 5 - HANDLING OF WATER	LS	1
BMP 5 - DREDGE	CY	19000
BMP 5 - STRIP, STOCKPILE AND REPLACE 9" TOPSOIL	CY	66
BMP 5 - TRENCH EXCAVATION, STOCKPILE AND BACKFILL	CY	182
BMP 5 - REMOVE AND DISPOSE EXISTING 72" CMP	LF	257
BMP 5 - NON-SHRINK GROUT FOR PIPE PLUGS	CY	7
BMP 5 - CLASS "B" ROCK RIPRAP	TN	30
BMP 5 - GRAVEL FOR ROAD REPLACEMENT	CY	7
BMP 5 - SEEDING - GRASS SEED MIX	AC	0.2
BMP 5 - EROSION CONTROL MATTING	SY	105.0

BMP 15

ITEM	UNITS	QUANTITY
BMP 15 - HANDLING OF WATER	LS	1
BMP 15 - REMOVE AND DISPOSE OF EXISTING RISER	EA	1
BMP 15 - REMOVAL OF EXISTING PIPE	LF	125
BMP 15 - STRIP, STOCKPILE AND REPLACE 9" TOPSOIL	CY	1826
BMP 15 - OVEREXCAVATE AND HAUL TO SPOIL SITE	CY	3066
BMP 15 - EARTH EMBANKMENT	CY	15832
BMP 15 - 12" KNIFE GATE VALVE	EA	1
BMP 15 - 12" PVC DRAWDOWN PIPE	LF	18
BMP 15 - 30" HDPE PIPE	LF	96
BMP 15 - 36" CMP	LF	20
BMP 15 - CONCRETE COLLAR AND FOOTING	EA	1
BMP 15 - 12" PVC PIPE TRASH RACK	EA	1
BMP 15 - RISER FORMED CONCRETE	CY	16
BMP 15 - RISER STEEL REINFORCEMENT	LBS	2666
BMP 15 - RISER METAL FABRICATION	LS	1
BMP 15 - RISER STEPS	EA	10
BMP 15 - MJXFL DIP WITH WALL COLLAR AND MJ GLAND AND GASKET	LS	1
BMP 15 - CLASS "B" ROCK RIPRAP	TN	88
BMP 15 - CLASS "E" ROCK RIPRAP	TN	24
BMP 15 - ROCK RUBBLE	TN	12
BMP 15 - SEEPAGE FILTER SAND FOR DIAPHRAGM FILTER	CY	11
BMP 15 - 8" SOLID WALL PVC DRAIN PIPE	LF	55
BMP 15 - 8" SLOTTED WALL PVC	LF	10
BMP 15 - REMOVE AND SALVAGE EXISTING CULVERT	EA	1
BMP 15 - PLACE SALVAGED CULVERT	EA	1
BMP 15 - CULVERT CROSSING CLASS "E" ROCK RIPRAP	TN	40
BMP 15 - CULVERT CROSSING CLASS "B" ROCK RIPRAP	TN	6
BMP 15 - CULVERT CROSSING EARTH EMBANKMENT	CY	412
BMP 15 - TRAIL REALIGNMENT EMBANKMENT	CY	210
BMP 15 - SEEDING - GRASS SEED MIX	AC	6
BMP 15 - EROSION CONTROL MATTING	SY	5477

CAMPGROUND IMPROVEMENTS

ITEM	UNITS	QUANTITY
CAMPGROUND IMPROVEMENTS - EARTH EMBANKMENT	CY	430
CAMPGROUND IMPROVEMENTS - ELECTRIC BOX RAISE	EA	1
CAMPGROUND IMPROVEMENTS - WATER HYDRANT RAISE	EA	2
CAMPGROUND IMPROVEMENTS - TREE TRANSPLANT	EA	3
CAMPGROUND IMPROVEMENTS - EROSION CONTROL MATTING	SY	3829
CAMPGROUND IMPROVEMENTS - SEEDING - GRASS SEED MIX	AC	1.2

STREAM MITIGATION

ITEM	UNITS	QUANTITY
STREAM MITIGATION - CLASS "E" ROCK RIPRAP	TN	538
STREAM MITIGATION - EXCAVATION	CY	298
STREAM MITIGATION - SEEDING - FLOODPLAIN SEED MIX	AC	0.7
STREAM MITIGATION - SEEDING - GRASS SEED MIX	AC	2.6
STREAM MITIGATION - EROSION CONTROL MATTING	SY	1000

JETTY

ITEM	UNITS	QUANTITY
JETTY - EMBANKMENT	CY	8504
JETTY - DREDGE	CY	1124
JETTY - CLASS "E" ROCK RIPRAP	TN	1677
JETTY - GRASS SEED MIX	AC	0.2

IN-LAKE DREDGING

ITEM	UNITS	ZONE 1	ZONE 2	ZONE 3	ZONE 4	ZONE 5	ZONE 6
DREDGE	CY	66,830	23,022	1,541	2,323	35,548	3,800

SHORELINE

ITEM	UNITS	QUANTITY
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	54
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - GEOGRID	SY	620
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - FLOODPLAIN SEED MIX	AC	0.1
SHORELINE - OPEN-CELLED GEOGRID EROSION PROTECTION - WETLAND SEED MIX	AC	0.1
SHORELINE - SHALLOW EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	866
SHORELINE - SHALLOW EROSION PROTECTION - GRAVEL	CY	162
SHORELINE - SHALLOW EROSION PROTECTION - GRASS SEED MIX	AC	0.4
SHORELINE - MEDIUM EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	1550
SHORELINE - MEDIUM EROSION PROTECTION - GRASS SEED MIX	AC	0.7
SHORELINE - DEEP EROSION PROTECTION - CLASS "E" ROCK RIPRAP	TN	2864
SHORELINE - DEEP EROSION PROTECTION - GRASS SEED MIX	AC	0.7

FISH HABITAT

ITEM	UNITS	QUANTITY
FISH HABITAT - ROCK STAR	EA	11
FISH HABITAT - UNDERWATER SHOAL	EA	9
FISH HABITAT - TREE PILE	EA	25
FISH HABITAT - SHOT ROCK	TN	450
FISH HABITAT - MISC. EXCAVATOR WORK	HR	54

SPOILS SITE

ITEM	UNITS	SOUTH	EAST	WEST
SPOILS SITE - EARTH EMBANKMENT	CY	4272	3040	406
SPOILS SITE - 15" SOLID WALL PVC & APPURTENANCES	LF	74	---	---
SPOILS SITE - 15" PERFORATED PVC RISER W/ SOCK	EA	1	---	---
SPOILS SITE - 12" SOLID WALL PVC & APPURTENANCES	LF	---	87	---
SPOILS SITE - 12" PERFORATED PVC RISER W/ SOCK	EA	---	1	---
SPOILS SITE - CLASS "E" ROCK RIPRAP	TN	2	2	---
SPOILS SITE - SEEDING - COVER CROP	AC	5.3	5.1	4.0
SPOILS SITE - REMOVAL OF ELECTRICAL BOX	EA	1	---	---
SPOILS SITE - ABANDON ELECTRICAL UTILITY LINE	LF	240	---	---
SPOILS SITE - GAS LINE PROTECTION	LS	1	---	---

STEP POOL

ITEM	UNITS	QUANITIY
STEP POOL - EXCAVATION	CY	225
STEP POOL - FILTER FABRIC	SY	49
STEP POOL - STEP POOL BOULDERS	TN	39
STEP POOL - SCOUR POOL STONE MIX	TN	64
STEP POOL - SEEDING - FLOODPLAIN SEED MIX	AC	0.1
STEP POOL - EROSION CONTROL MATTING	SY	520
STEP POOL - REMOVE 18" DIA CMP	LF	20

PARKING LOT AND PLAYGROUND IMPROVEMENTS

ITEM	UNITS	QUANTITY
PARKING LOT AND PLAYGROUND - STRIP, STOCKPILE AND REPLACE 9" TOPSOIL	CY	2,458
PARKING LOT AND PLAYGROUND - EMBANKMENT	CY	14,116
PARKING LOT AND PLAYGROUND - GRAVEL SURFACING	CY	571
PARKING LOT AND PLAYGROUND - LIMESTONE CHIP SURFACING	CY	37
PARKING LOT AND PLAYGROUND - PCC SURFACING	CY	82
PARKING LOT AND PLAYGROUND - SEEDING - GRASS SEED MIX	AC	1.6
PARKING LOT AND PLAYGROUND - EROSION CONTROL MATTING	SY	7,550
PARKING LOT AND PLAYGROUND - SIGNAGE AND MARKINGS	LS	1
PARKING LOT AND PLAYGROUND - WOOD POSTS	EA	17
PARKING LOT AND PLAYGROUND - REMOVE AND REPLACE ELECTRIC LINE	LS	1
PARKING LOT AND PLAYGROUND - ABANDON WATER LINE	LF	94
PARKING LOT AND PLAYGROUND - RELOCATE WATER LINE AND WATER HYDRANT	LS	1
PARKING LOT AND PLAYGROUND - BEACH SAND	CY	214

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

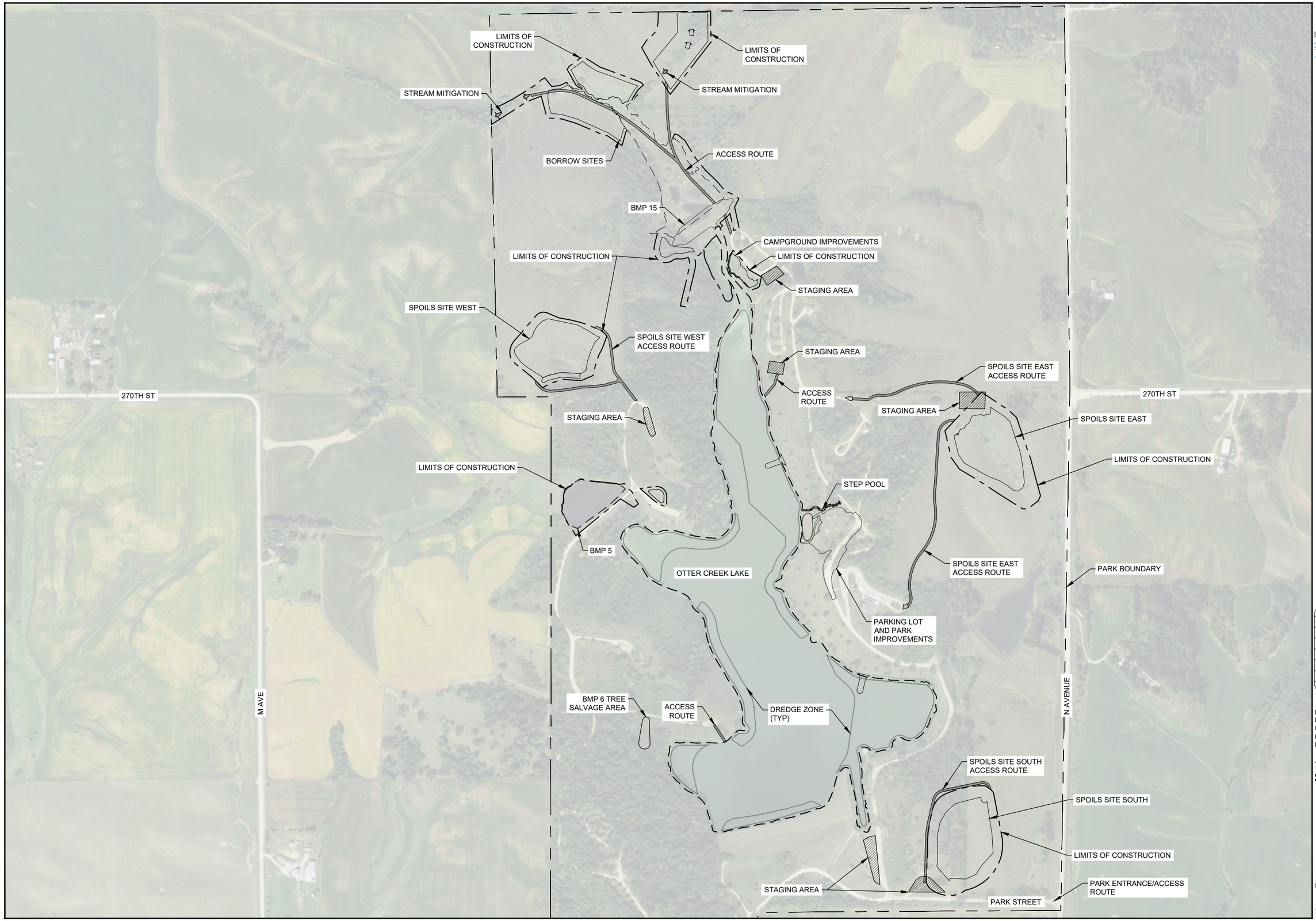
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: CKW
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
NOTE SHEET

SHEET
A.2



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TITLE
SITE MAP

SHEET
A.3

SITE	DRAINAGE AREA (AC)	PRE DREDGE PERM POOL EL	POST DREDGE PERM POOL EL	PRE DREDGE PERM POOL SURFACE AREA (AC)	POST DREDGE PERM POOL SURFACE AREA (AC)	PRE DREDGE PERM POOL STORAGE VOLUME (AC-FT)	POST DREDGE PERM POOL STORAGE VOLUME (AC-FT)	PRE DREDGE MEAN DEPTH (FT)	POST DREDGE MEAN DEPTH (FT)	PRE DREDGE C/I RATIO*	POST DREDGE C/I RATIO*
BMP 5	183.1	934.7	933.0	2.22	1.89	6.0	17.9	3.0	8.7	0.03	0.1

*C/I IS COMPUTED AT RISER CREST

NORTH

SCALE IN FEET

0 30 60

NOTES:
1. CONTRACTOR MUST COORDINATE WITH THE FIELD ENGINEER FOR HANDLING EXISTING UTILITIES.
2. DEWATERING WILL BE CONDUCTED THROUGH THE EXISTING 72" CMP. THE EXISTING PIPE WILL REMAIN OPEN UNTIL ALL DREDGE WORK IS COMPLETE.
3. CONTRACTOR TO COORDINATE WITH FIELD ENGINEER UPON COMPLETION OF DREDGING TO ALLOW SURVEY OF POND (PERFORMED BY THIRD PARTY COORDINATED BY OWNER) FOR QUANTITY VERIFICATION PRIOR TO REMOVING THE EXISTING PIPE AND REFILLING THE POND. CONTRACTOR IS REQUIRED TO MAINTAIN DRY CONDITIONS IN THE POND UNTIL THE SURVEY IS COMPLETE.

DO NOT DISTURB EXISTING WETLANDS

TEMPORARY POOL EL 934.5

DREDGE 19,000 CY BELOW TEMPORARY POOL AT 3:1 TO EL 923.5. SPOIL MATERIAL IN SPOILS SITE

LIMITS OF CONSTRUCTION, AVOID WETLANDS

934.5

923.5

3:1 (TYP)

MAINTAIN GRADING AS NEEDED TOWARDS EXISTING 72" CMP TO MAXIMIZE DRAWDOWN CAPABILITIES

0+50

0+00

EXISTING PRINCIPAL SPILLWAY RISER. DO NOT DISTURB.

EXCAVATE MATERIAL FOR PIPE REMOVAL, STOCKPILE ON SITE AND BACKFILL BACK TO MATCH EXISTING GRADE. SEE DETAIL 3-B.100

EXISTING 72" CMP. USE EXISTING PIPE TO DRAIN WATER DURING DREDGING. UPON COMPLETION OF DREDGING, PIPE TO BE REMOVED AND CONTRACTOR IS RESPONSIBLE FOR HANDLING WATER TO MAINTAIN A DRY WORK AREA FOR BACKFILLING THE EMBANKMENT.

1+00

EXISTING 63" HDPE PIPE

EXISTING TRAIL

STRIP, STOCKPILE, AND REPLACE 9" OF TOPSOIL ON ALL DISTURBED GROUND AND SEED WITH GRASS SEED MIX.

REPLACE GRAVEL ROAD TO EXISTING CONDITIONS. GRAVEL DEPTH MUST BE 6" MIN.

LOCATE AND PROTECT UTILITIES. PROVIDE PROPER SUPPORT AND USE CAUTION WHEN PLACING BACKFILL

REMOVE 130 LF OF EXISTING 72" CMP PIPE UNDER ROAD EMBANKMENT

CONSTRUCT A 3 FT PLUG AT UPSTREAM END OF REMAINING 72" CMP PIPE PER METHOD DETERMINED BY CONTRACTOR

INSTALL SILT FENCE PER DETAILS 2-S.100 AND 3-S.100

PREVIOUS EXCAVATION FROM PHASE 2 SHALL BE FILLED WITH DREDGE MATERIAL TO MATCH ADJACENT ELEVATIONS. SEED WITH GRASS SEED MIX.

LIMITS OF CONSTRUCTION

LOCAL PARK ROAD

EXISTING TREES

EXISTING BMP 5 EMBANKMENT

LIMITS OF CONSTRUCTION

PARK STREET

PARK BOUNDARY

EXISTING ROCK RIPRAP

926

2+00

921

PLACE CLASS "B" ROCK RIPRAP STABILIZATION PER DETAIL 1-B.100

2+50

LOCAL EXCAVATION FOR BMP 5 OUTLET, SEE DETAIL 2-B.100.

CONSTRUCT A 3 FT PLUG AT DOWNSTREAM END OF REMAINING 72" CMP PIPE PER METHOD DETERMINED BY CONTRACTOR. BACKFILL PIPE TO PROVIDE MIN 2 FT COVER DEPTH.

IN-LAKE DREDGING AND SHORELINE IMPROVEMENTS, REFER TO F. SHEETS

OTTER CREEK LAKE PERMANENT POOL EL 926.0

REMOVE AN ESTIMATED 125 LF OF EXISTING 72" CMP THAT EXTENDS BELOW OTTER CREEK PERMANENT POOL EL 926.0

OTTER CREEK LAKE

IN-LAKE DREDGING REFER TO F. SHEETS

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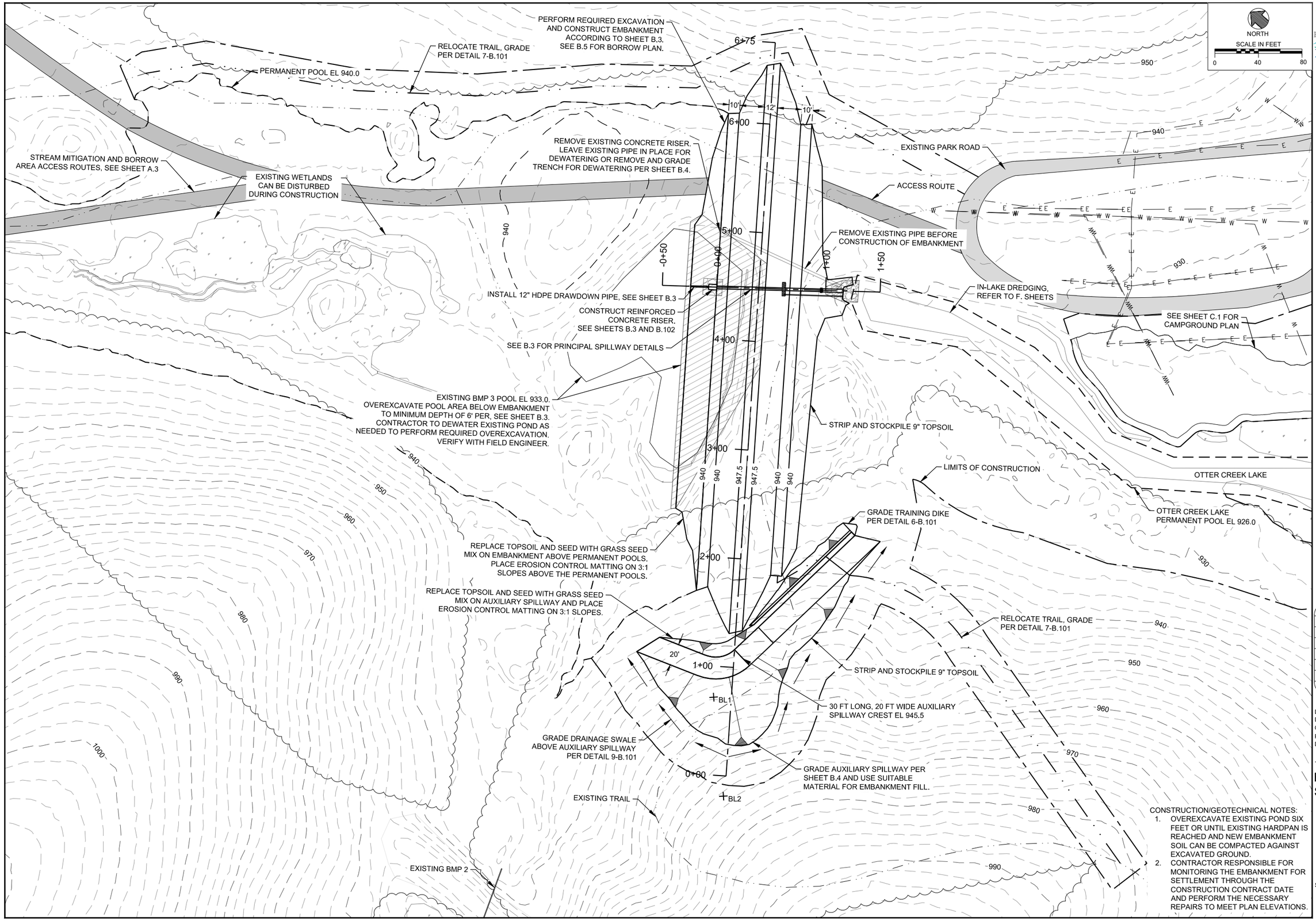
TITLE
BMP 5 DREDGE SITE PLAN

SHEET
B.1



CONSTRUCTION/GEOTECHNICAL NOTES:

1. OVEREXCAVATE EXISTING POND SIX FEET OR UNTIL EXISTING HARDPAN IS REACHED AND NEW EMBANKMENT SOIL CAN BE COMPACTED AGAINST EXCAVATED GROUND.
2. CONTRACTOR RESPONSIBLE FOR MONITORING THE EMBANKMENT FOR SETTLEMENT THROUGH THE CONSTRUCTION CONTRACT DATE AND PERFORM THE NECESSARY REPAIRS TO MEET PLAN ELEVATIONS.

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

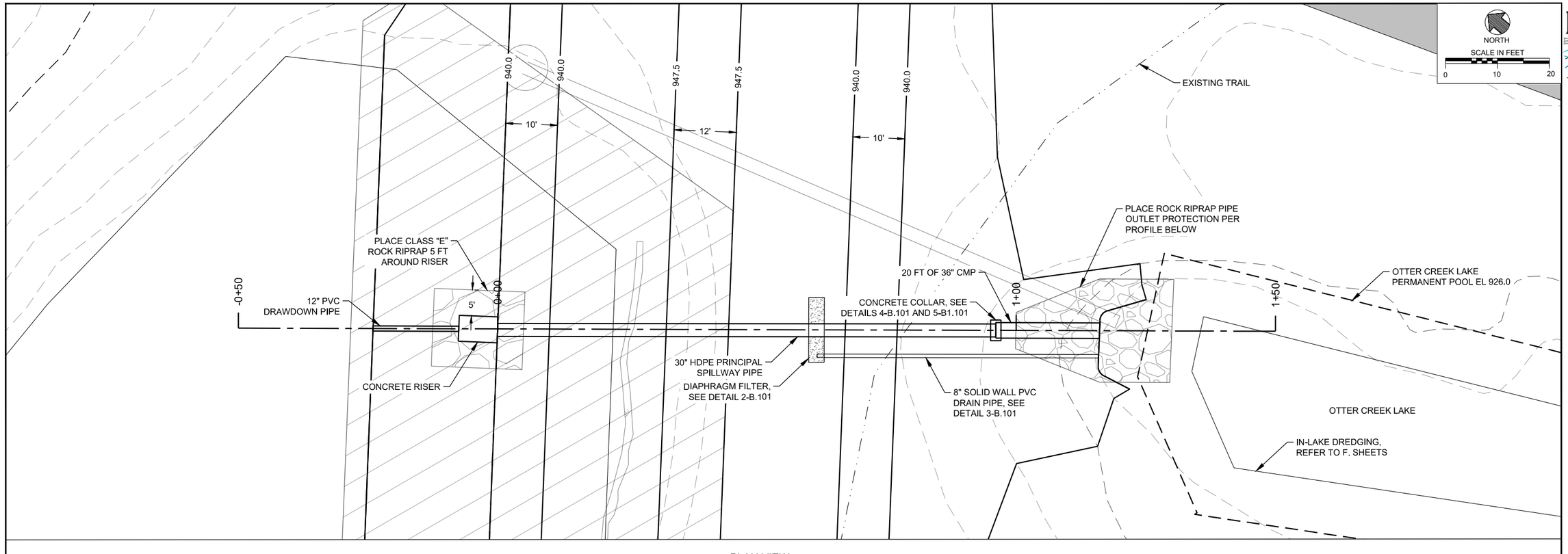
DESIGNED BY:	SEM
DRAWN BY:	CKW
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE

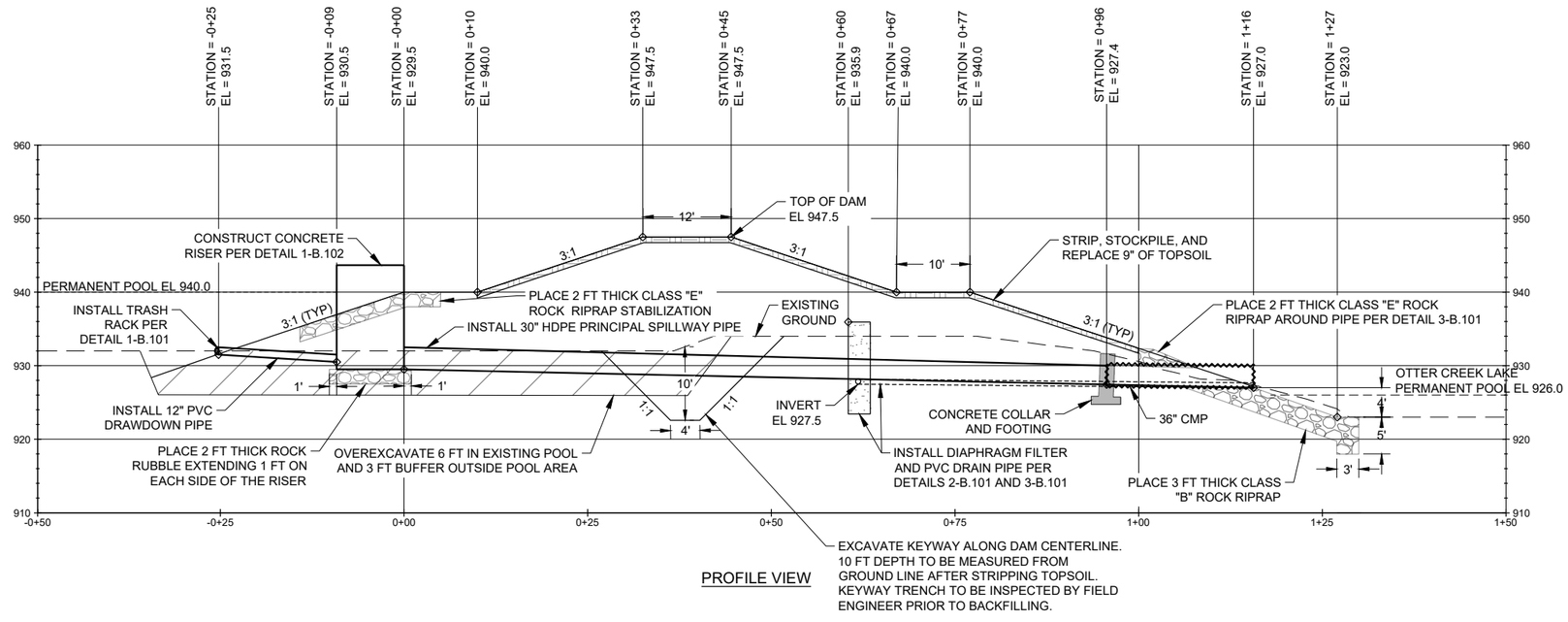
BMP 15 SITE PLAN

SHEET

B.2



PLAN VIEW



PROFILE VIEW

HORIZONTAL SCALE IN FEET 0 10 20

VERTICAL SCALE IN FEET 0 10 20

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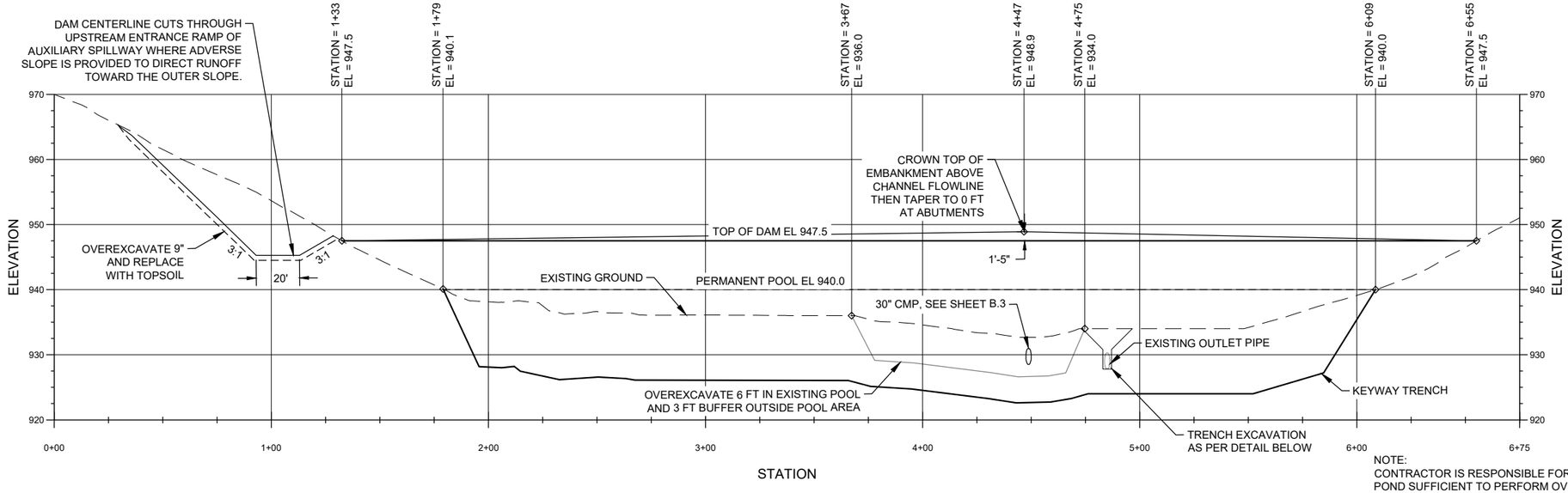
TITLE
BMP 15
PLAN AND
PROFILE

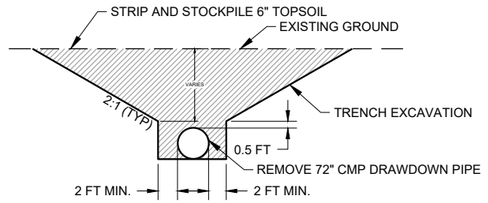
SHEET
B.3

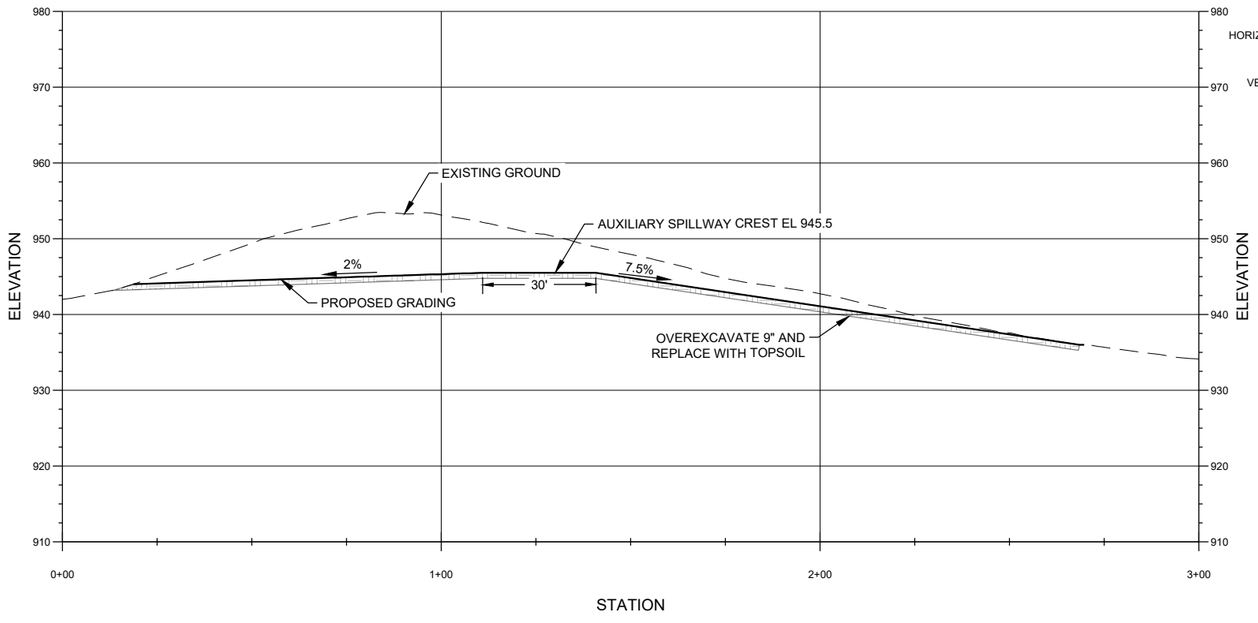


BMP 15 EMBANKMENT CENTERLINE PROFILE

SCALE IN FEET
HORIZONTAL 0 30 60
SCALE IN FEET
VERTICAL 0 10 20

NOTE:
CONTRACTOR IS RESPONSIBLE FOR DEWATERING EXISTING POND SUFFICIENT TO PERFORM OVEREXCAVATION AND CREATE A DRY WORKSPACE FOR PLACING EMBANKMENT FILL. CONTRACTOR CAN USE EXISTING PIPE OR TRENCH FOR DEWATERING EXISTING POND. TRENCH TO BE BACKFILLED ONCE CONSTRUCTION OF EMBANKMENT STARTS.





BMP 15 AUXILIARY SPILLWAY PROFILE

SCALE IN FEET
HORIZONTAL 0 20 40
SCALE IN FEET
VERTICAL 0 10 20

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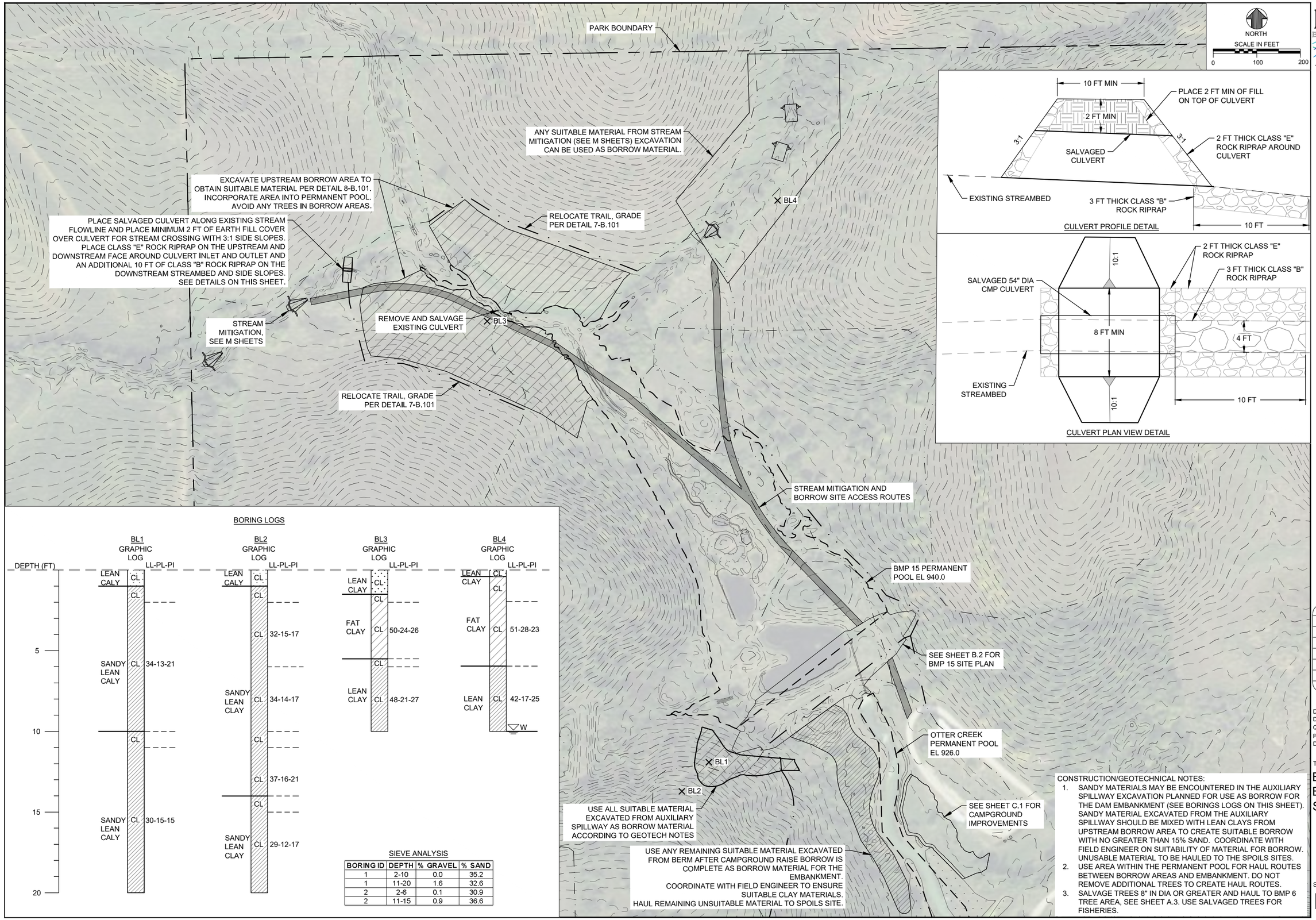
TITLE
BMP 15 PROFILES

SHEET
B.4



BORING LOGS

SIEVE ANALYSIS

BORING ID	DEPTH	% GRAVEL	% SAND
1	2-10	0.0	35.2
1	11-20	1.6	32.6
2	2-6	0.1	30.9
2	11-15	0.9	36.6

CONSTRUCTION/GEOTECHNICAL NOTES:

1. SANDY MATERIALS MAY BE ENCOUNTERED IN THE AUXILIARY SPILLWAY EXCAVATION PLANNED FOR USE AS BORROW FOR THE DAM EMBANKMENT (SEE BORINGS LOGS ON THIS SHEET). SANDY MATERIAL EXCAVATED FROM THE AUXILIARY SPILLWAY SHOULD BE MIXED WITH LEAN CLAYS FROM UPSTREAM BORROW AREA TO CREATE SUITABLE BORROW WITH NO GREATER THAN 15% SAND. COORDINATE WITH FIELD ENGINEER ON SUITABILITY OF MATERIAL FOR BORROW. UNUSABLE MATERIAL TO BE HAULED TO THE SPOILS SITES.
2. USE AREA WITHIN THE PERMANENT POOL FOR HAUL ROUTES BETWEEN BORROW AREAS AND EMBANKMENT. DO NOT REMOVE ADDITIONAL TREES TO CREATE HAUL ROUTES.
3. SALVAGE TREES 8" IN DIA OR GREATER AND HAUL TO BMP 6 TREE AREA, SEE SHEET A.3. USE SALVAGED TREES FOR FISHERIES.

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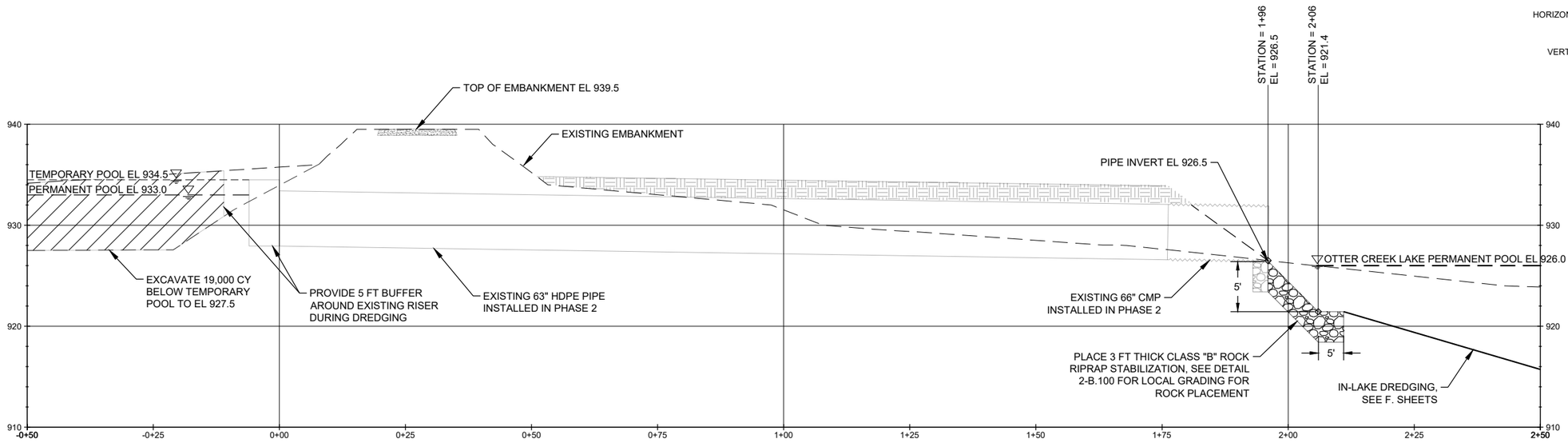
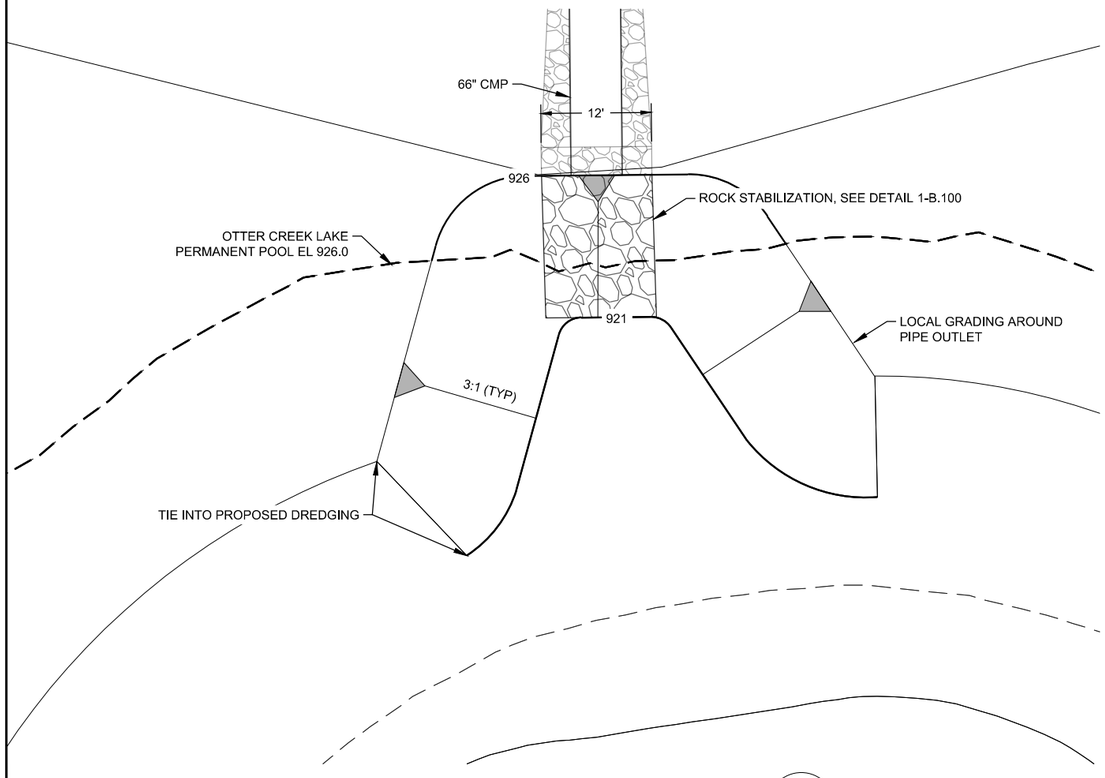
BMP 15 BORROW SITE PLAN

SHEET

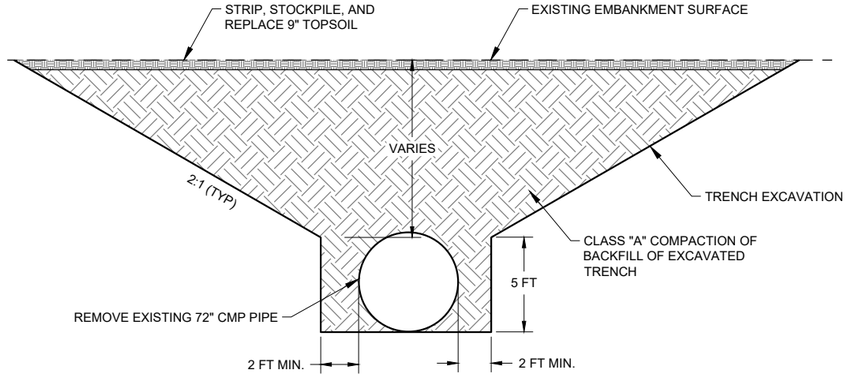
B.5



BMP 5 EMBANKMENT DETAIL 1 B.100



BMP 5 OUTLET GRADING DETAIL 2 B.100
NOT TO SCALE



TRENCH EXCAVATION & PIPE BACKFILL DETAIL 3 B.100
NOT TO SCALE

HORIZONTAL SCALE IN FEET 0 12 24
VERTICAL SCALE IN FEET 0 6 12

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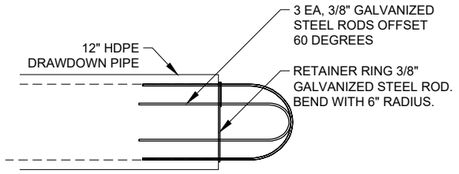
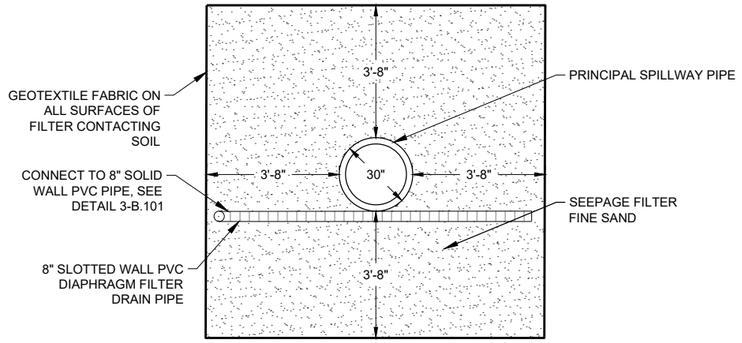
TITLE
BMP 5 DETAILS

SHEET
B.100



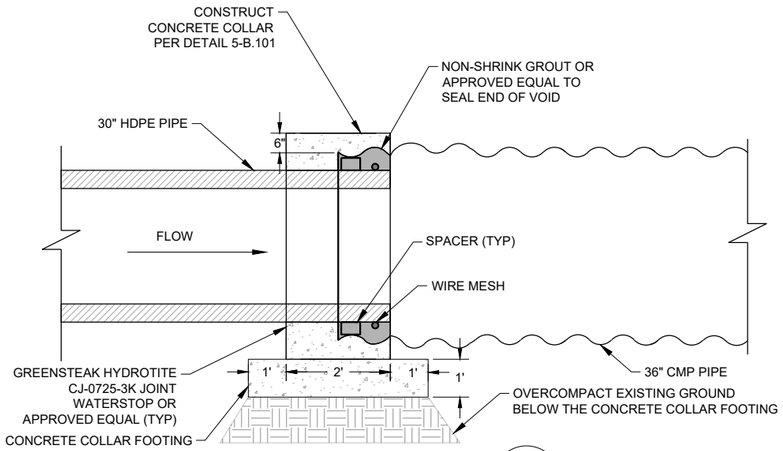
DRAWDOWN PIPE TRASHRACK 1 B.101

NOT TO SCALE



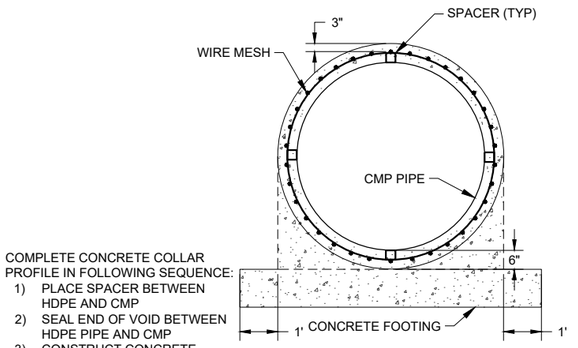
DIAPHRAGM FILTER 2 B.101

NOT TO SCALE



PIPE TRANSITION DETAIL 4 B.101

NOT TO SCALE



COMPLETE CONCRETE COLLAR PROFILE IN FOLLOWING SEQUENCE:

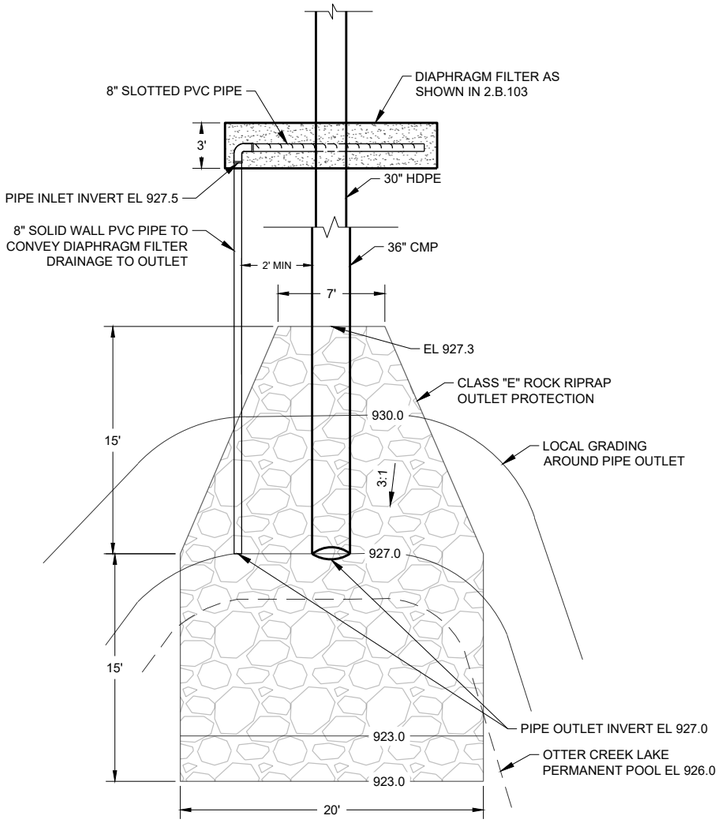
1) PLACE SPACER BETWEEN HDPE AND CMP
2) SEAL END OF VOID BETWEEN HDPE PIPE AND CMP
3) CONSTRUCT CONCRETE COLLAR
4) FILL VOID W/ FLOWABLE GROUT

CONCRETE COLLAR TO BE 6" THICK. REINFORCING WITH 6" X 6", 6/6 WIRE MESH WRAPPED COMPLETELY AROUND THE PIPE AND SUPPORTED WITH APPROVED SPACER TO PROVIDE 3" CONCRETE COVER.

CONCRETE COLLAR - SECTION VIEW

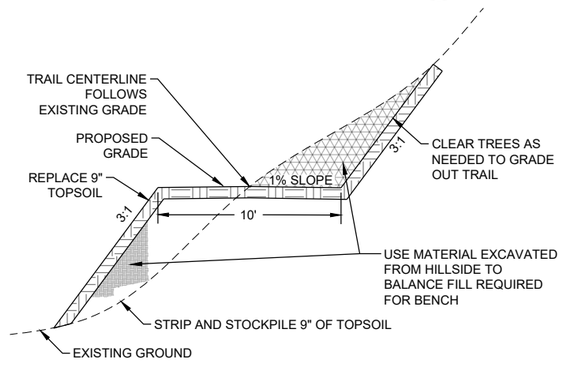
CONCRETE COLLAR DETAIL 5 B.101

NOT TO SCALE



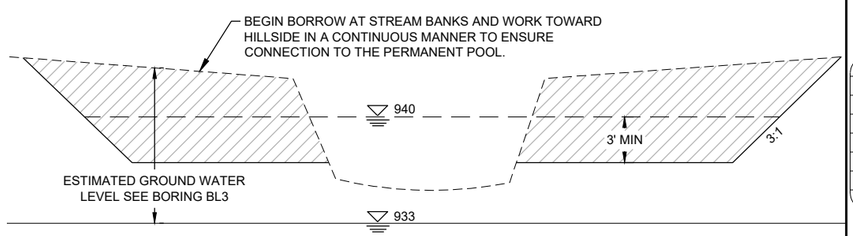
DRAIN PIPE OUTLET DETAIL 3 B.101

NOT TO SCALE



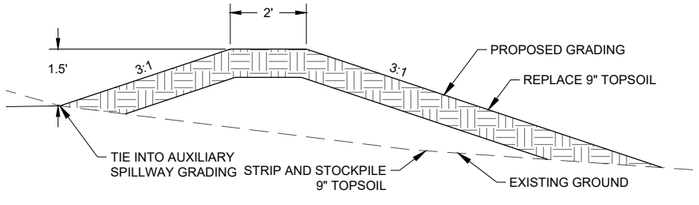
TRAIL GRADING DETAIL 7 B.101

NOT TO SCALE



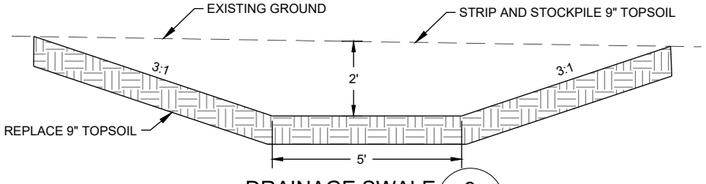
BORROW DETAIL 8 B.101

NOT TO SCALE



TRAINING DIKE DETAIL 6 B.101

NOT TO SCALE



DRAINAGE SWALE 9 B.101

NOT TO SCALE

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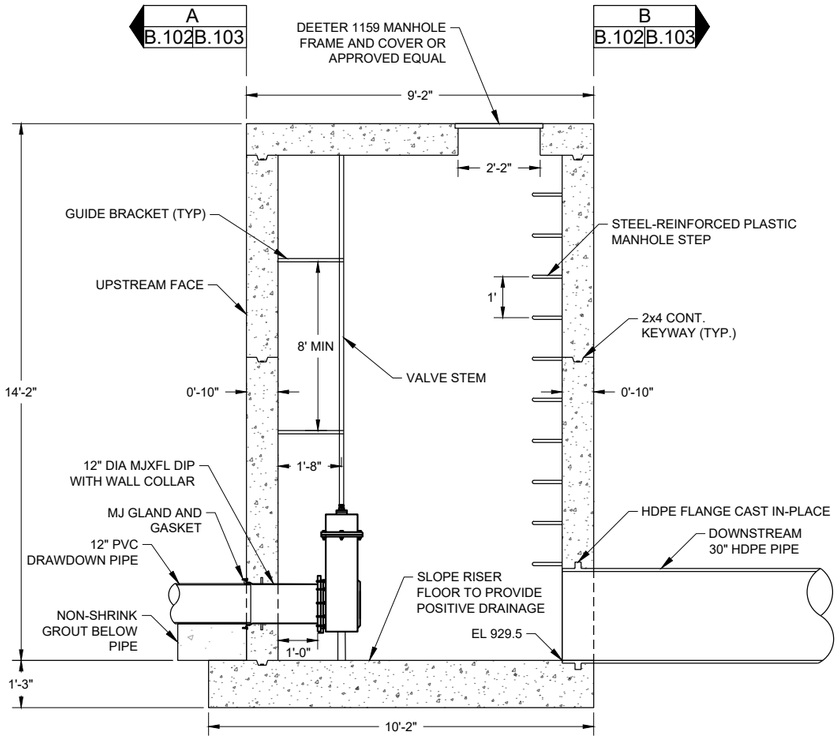
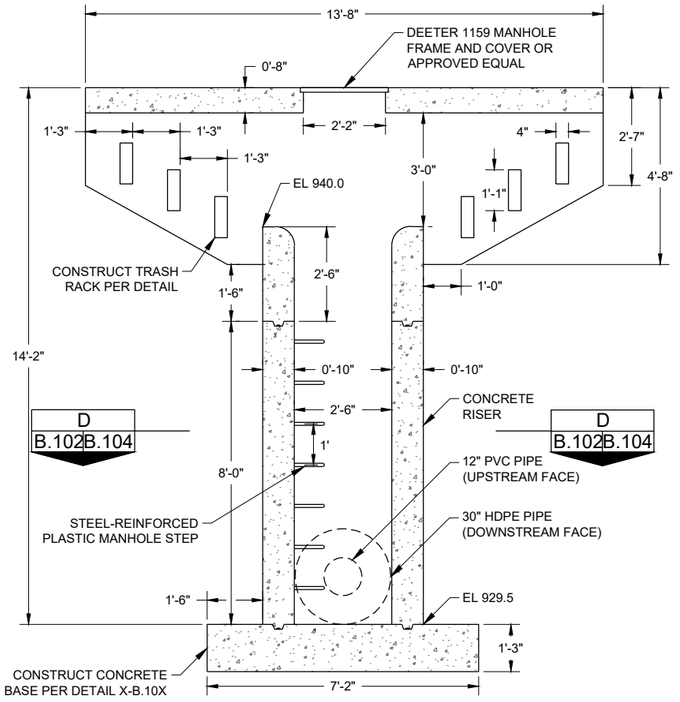
BMP 15
DETAILS

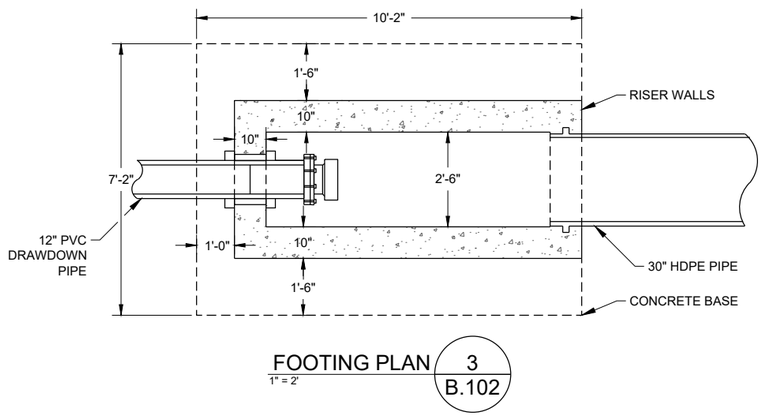
SHEET
B.101



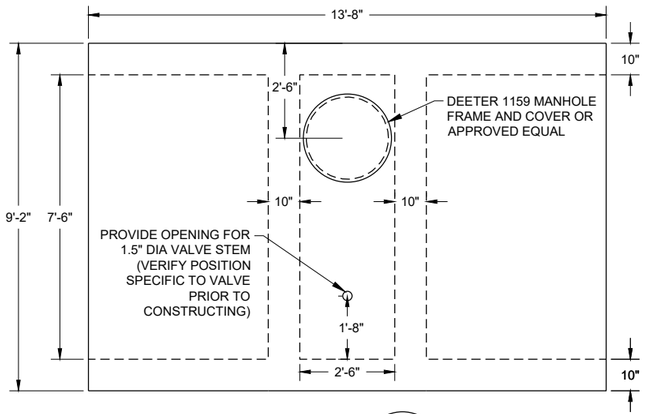
RISER SIDEWALL SECTION 1 / B.102
1" = 2'



RISER SECTION 2 / B.102
1" = 2'



FOOTING PLAN 3 / B.102
1" = 2'



TOP PLAN 4 / B.102
1" = 2'

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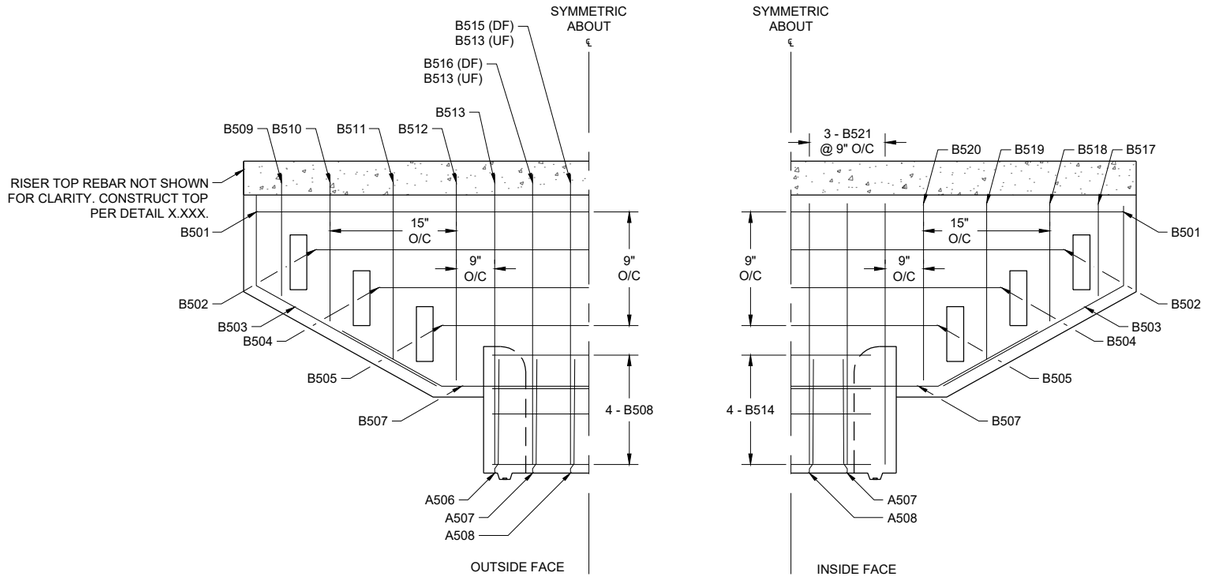
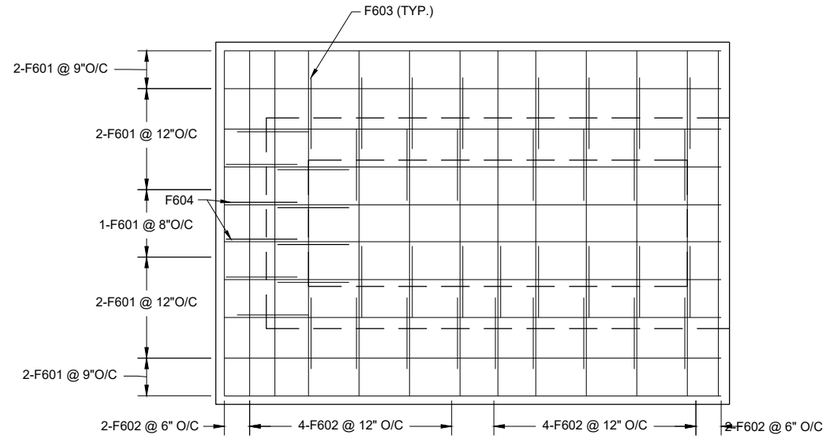
TITLE
RISER DETAILS (1 OF 3)

SHEET
B.102



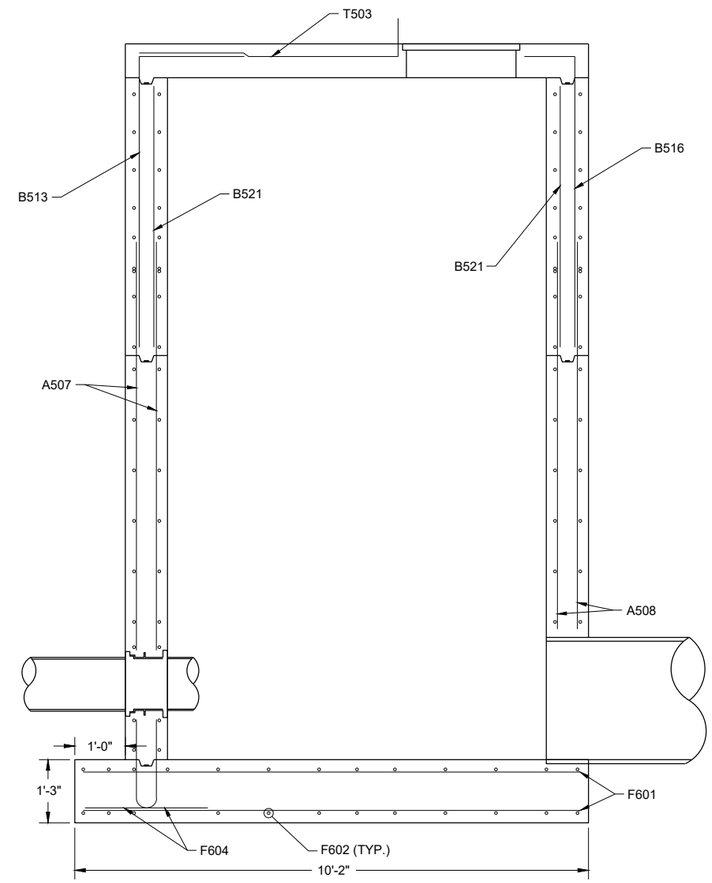
RISER ENDWALL-SEGMENT B SECTION 1 / B.103

1" = 1.5'



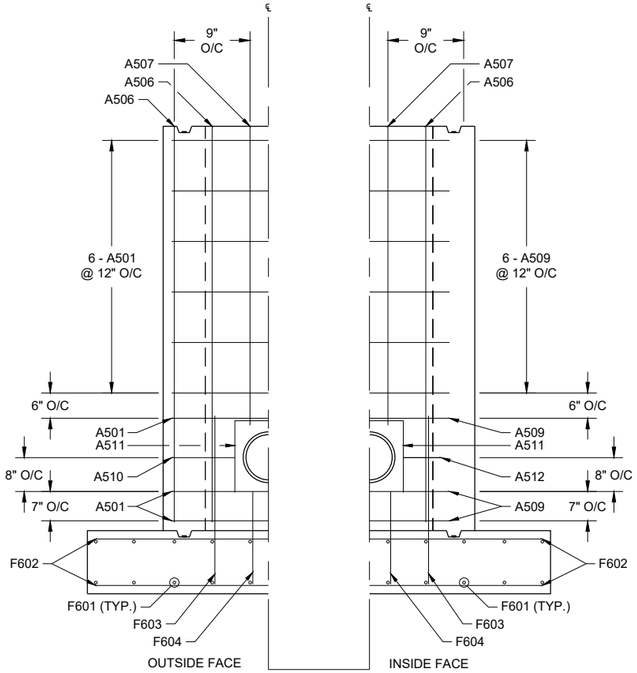
FOOTING PLAN 2 / B.103

1" = 1.5'



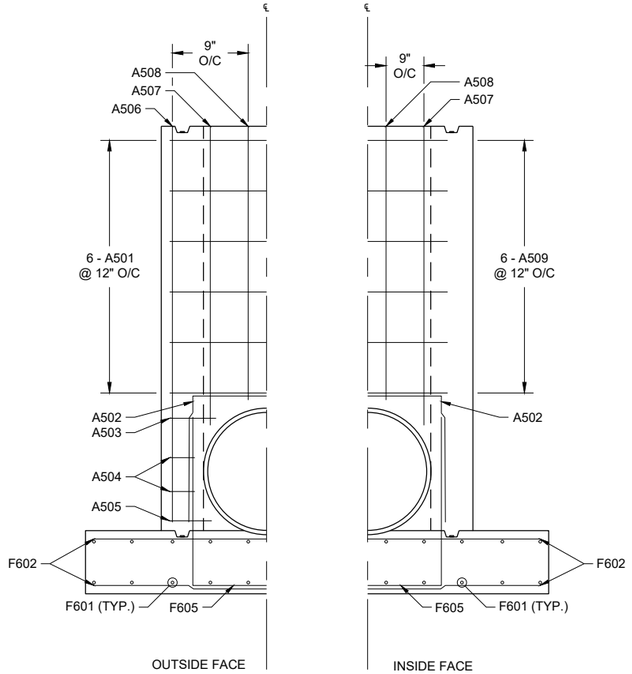
RISER SIDEWALL SECTION 3 / B.103

1" = 1.5'



RISER US ENDWALL-SEGMENT A SECTION A / B.102 B.103

1" = 1.5'



RISER DS ENDWALL-SEGMENT A SECTION B / B.102 B.103

1" = 1.5'

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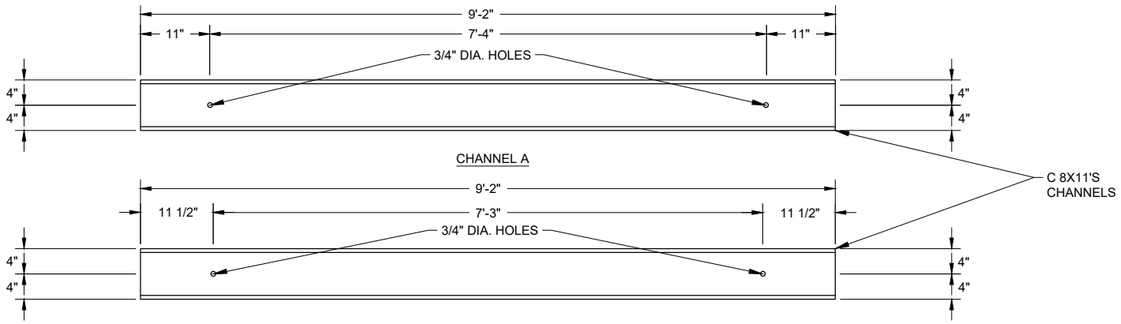
RISER DETAILS (2 OF 3)

SHEET
B.103



NOTE:

THE 1" DIMENSION ON SLOTS IS PARALLEL TO CHANNEL LENGTH

THERE WILL BE 6 CHANNEL B'S INSTALLED THROUGH RISER WINGWALL AND TWO CHANNEL A'S BOLTED TO OUTSIDE OF RISER WINGWALLS AS SHOWN ON DETAIL THIS SHEET

NOTE:

SPACING OF R8 AND R9 BARS WILL HAVE TO BE SLIGHTLY MODIFIED TO ALLOW FOR CONSTRUCTION OF RISER ORIFICE ON UPSTREAM RISER ENDWALL

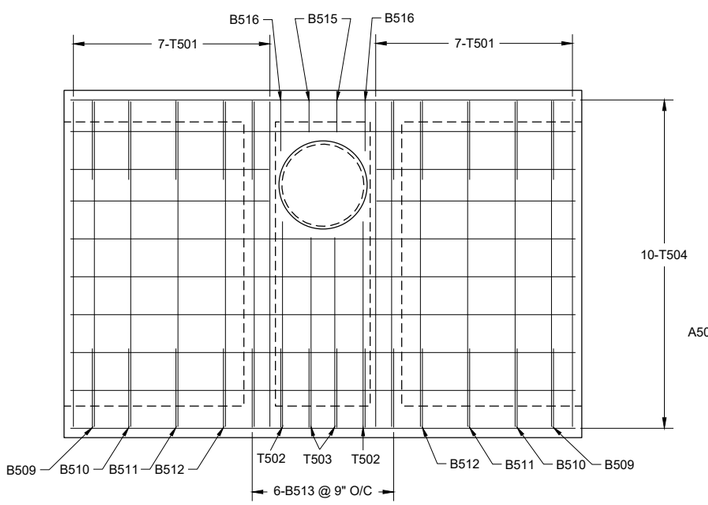
R6 AND R7 BARS WILL HAVE TO BE TRIMMED TO ALLOW CONSTRUCTION OF RISER ORIFICE ON UPSTREAM RISER ENDWALL. ALL TRIMMED REINFORCEMENT SHALL BE PLACED AROUND PERIMETER OF ORIFICE.

SEE SHEET 7 FOR ORIFICE DETAILS AND SHEET 12 FOR ORIFICE TRASH RACK DETAILS.

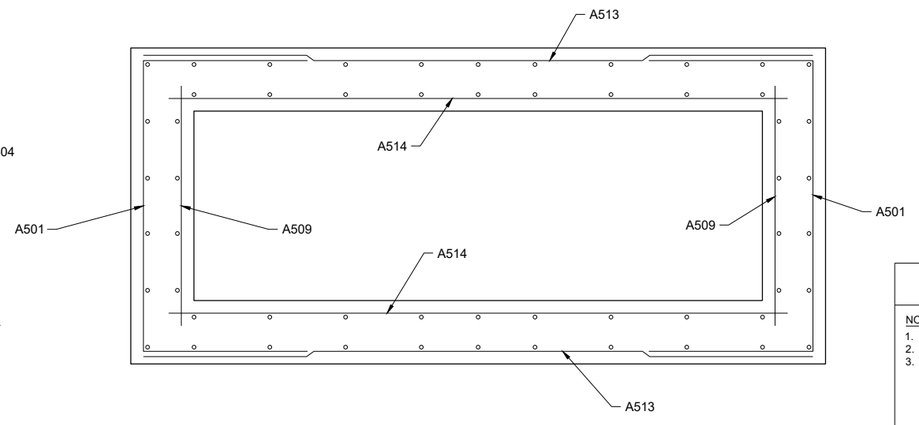
TRASH RACK CHANNEL DETAILS — 1" = 1' — 1 / B.104

BILL OF BARS

MARK	NO.	LENGTH	TYPE	A	B	C	PIN	HOOK	WEIGHT (LBS)
A501	15	8'-2"	103A	2'-2"	3'-10"	2'-2"	3 3/4"		127.8
A502	2	7'-11"	103A	2'-6"	2'-11"	2'-6"	3 3/4"		16.5
A503	2	3'-1"	102	0'-11"	2'-2"		3 3/4"		6.4
A504	4	2'-8"	102	2'-8"	2'-2"		3 3/4"		11.1
A505	2	3'-0"	102	0'-10"	2'-2"		3 3/4"		6.3
A506	44	10'-1"	STR	10'-1"					462.7
A507	8	8'-2"	STR	8'-2"					68.1
A508	4	7'-8"	STR	7'-8"					32.0
A509	15	3'-2"	STR	3'-2"					49.5
A510	2	3'-5"	102	1'-3"	2'-2"		3 3/4"		7.1
A511	2	4'-2"	103A	1'-5"	1'-4"	1'-5"	3 3/4"		8.7
A512	2	2'-11"	102	0'-9"	2'-2"		3 3/4"		6.1
A513	20	8'-10"	STR	8'-10"					184.3
A514	20	8'-2"	STR	8'-2"					170.4
B501	4	13'-2"	STR	13'-2"					54.9
B502	4	10'-10"	STR	10'-10"					45.2
B503	4	6'-5"	101A	4'-1"	1'-7"	9"	3 3/4"		26.8
B504	4	8'-4"	STR	8'-4"					34.8
B505	4	5'-10"	STR	5'-10"					24.3
B507	4	9'-2"	106	2'-3"	5'-10"	1'-1"	3 3/4"		38.2
B508	8	8'-2"	103A	2'-2"	3'-10"	2'-2"	3 3/4"		68.1
B509	4	4'-6"	102	2'-1"	2'-5"		3 3/4"		18.8
B510	4	5'-0"	102	2'-1"	2'-11"		3 3/4"		20.9
B511	4	5'-9"	102	2'-1"	3'-8"		3 3/4"		24.0
B512	4	6'-2"	102	2'-1"	4'-1"		3 3/4"		25.7
B513	8	7'-10"	102	2'-1"	5'-9"		3 3/4"		65.4
B514	8	3'-2"	STR	3'-2"					26.4
B515	2	6'-7"	102	0'-10"	5'-9"		3 3/4"		13.7
B516	2	7'-1"	102	1'-4"	5'-9"		3 3/4"		14.8
B517	4	1'-10"	STR	1'-10"					7.6
B518	4	2'-4"	STR	2'-4"					9.7
B519	4	3'-1"	STR	3'-1"					12.9
B520	4	3'-6"	STR	3'-6"					14.6
B521	12	5'-2"	STR	5'-2"					64.7
F601	20	9'-10"	STR	9'-10"					205.1
F602	26	6'-10"	STR	6'-10"					185.3
F603	38	4'-9"	102	1'-5"	3'-4"		4 1/2"		188.3
F604	4	3'-2"	102	1'-5"	1'-9"		4 1/2"		13.2
F605	2	9'-7"	103A	3'-4"	2'-11"	3'-4"	4 1/2"		20.0
T501	14	8'-7"	STR	8'-7"					125.3
T502	2	5'-5"	STR	5'-5"					11.3
T503	2	5'-0"	STR	5'-0"					10.4
T504	10	13'-4"	STR	13'-4"					139.1



TOP PLAN — 1" = 2' — 2 / B.104



TOP PLAN- SEGMENT A — NOT TO SCALE — D / B.102 B.104

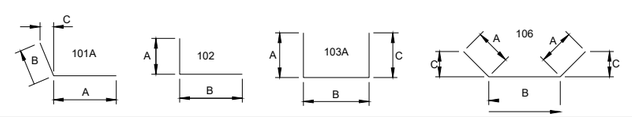
BAR MARK

A403 A 4 03

- 03 — BAR NUMBER
- 4 — BAR SIZE
- A — TYPE OF ELEMENT:
  - A = SEGMENT A
  - B = SEGMENT B
  - F = FOOTING
  - T = TOP

BENDING DIAGRAMS

NOTES:
1. ALL DETAILING DIMENSIONS ARE FROM OUTSIDE TO OUTSIDE OF BAR.
2. ALL REINFORCING STEEL SHALL BE EPOXY COATED.
3. ALL REINFORCING STEEL TO PROVIDED WITH 2" CONCRETE COVER UNLESS OTHERWISE NOTED.



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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

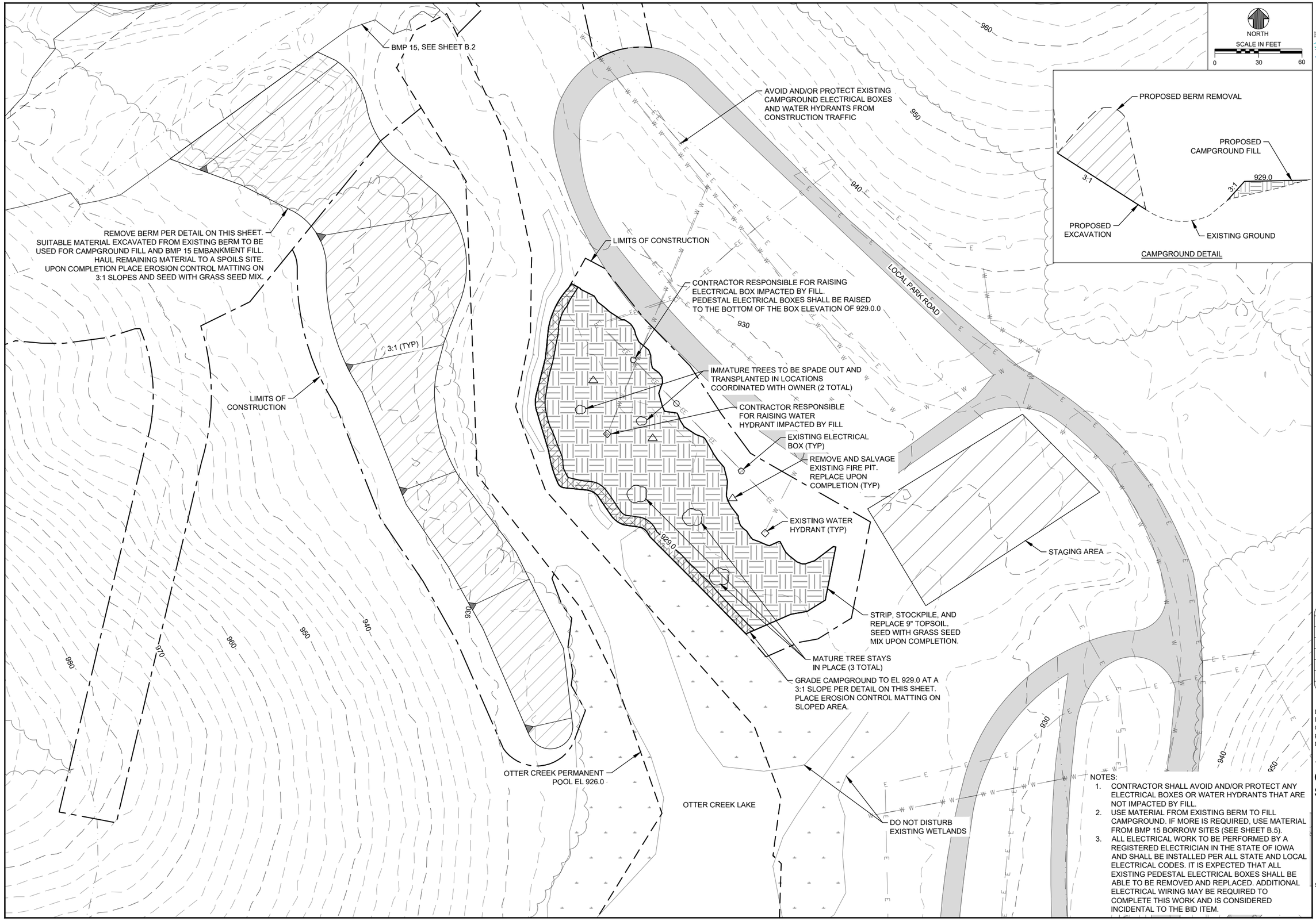
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: CKW
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
RISER DETAILS (3 OF 3)

SHEET
B.104



NOTES:

1. CONTRACTOR SHALL AVOID AND/OR PROTECT ANY ELECTRICAL BOXES OR WATER HYDRANTS THAT ARE NOT IMPACTED BY FILL.
2. USE MATERIAL FROM EXISTING BERM TO FILL CAMPGROUND. IF MORE IS REQUIRED, USE MATERIAL FROM BMP 15 BORROW SITES (SEE SHEET B.5).
3. ALL ELECTRICAL WORK TO BE PERFORMED BY A REGISTERED ELECTRICIAN IN THE STATE OF IOWA AND SHALL BE INSTALLED PER ALL STATE AND LOCAL ELECTRICAL CODES. IT IS EXPECTED THAT ALL EXISTING PEDESTAL ELECTRICAL BOXES SHALL BE ABLE TO BE REMOVED AND REPLACED. ADDITIONAL ELECTRICAL WIRING MAY BE REQUIRED TO COMPLETE THIS WORK AND IS CONSIDERED INCIDENTAL TO THE BID ITEM.

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TITLE
CAMPGROUND SITE PLAN

SHEET
C.1

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TAMA COUNTY, IOWA
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QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE
LAKE SHEET KEY

SHEET
F.1

LEGEND

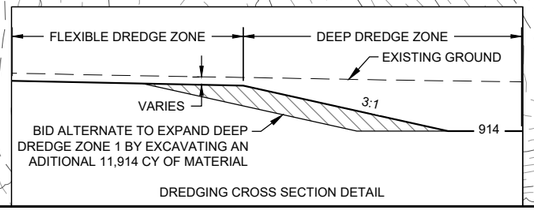
- SHALLOW EROSION PROTECTION (S)
- MEDIUM EROSION PROTECTION (M)
- DEEP EROSION PROTECTION (D)
- OPEN-CELLED GEOGRID EROSION PROTECTION (G)
- SHORELINE BID ALTERNATE
- DEEP DREDGE ZONE (DREDGE TO EL 914)
- FLEXIBLE DREDGE ZONE (DREDGE DEPTH VARIES PER PLANS)
- SHALLOW DREDGE ZONE (DREDGE 5 FT DEPTH)

NORTH
SCALE IN FEET
0 60 120

LOCAL PARK ROAD
AVOID AND/OR PROTECT EXISTING CAMPGROUND ELECTRICAL BOXES AND WATER HYDRANTS FROM CONSTRUCTION TRAFFIC
EXISTING TRAIL
STAGING AREA
15 FT WIDE ACCESS ROUTE
DREDGE AT A 2:1 SLOPE IN AREAS WITH DEEP EROSION PROTECTION (TYP)
STAGING AREA
SEE SHEET C.1 FOR CAMPGROUND PLAN
AVOID AND/OR PROTECT EXISTING CAMPGROUND ELECTRICAL BOXES AND WATER HYDRANTS FROM CONSTRUCTION TRAFFIC
TREE PILE (TYP), SEE DETIAL 3-H.100
DREDGE ZONE 1 (DEEP) 62,878 CY
DREDGE ZONE 1 (SHALLOW) 1,425 CY
UNDERWATER SHOAL, SEE DETAIL 2-H.100
OTTER CREEK LAKE
DREDGE ZONE 1 (FLEXIBLE) 2,527 CY
DREDGE TO 3 TO 5 FT DDEPTHS AS FEASIBLE NOT TO EXCEED 3:1 SLOPES. TIE INTO DEEP ZONE GRADING.
DREDGE 2,527 CY FROM THE FLEXIBLE DREDGE ZONE, DEPTHS MAY VARY. SEE DETAIL BELOW FOR CROSS SECTION.
ALIGNMENT ALONG PERMANENT POOL EL 926.0
SEE SHEET B.2 FOR BMP 15 SITE PLAN
STAGING AREA FOR SPOILS SITE WEST (SEE SHEET I.3)
PARK STREET
MATCHLINE SEE SHEET F.3

NOTE:SHORELINE PLAN VIEW ONLY SHOWS LOCATION. GRADING AND EXTENTS SHOULD BE CONSTRUCTED ACCORDING TO SPECIFIED DETAIL ON SHEET F.100.

START STA	END STA	SHORELINE TYPE	LENGTH
0+51	1+16	MEDIUM EROSION PROTECTION	65
1+16	3+99	DEEP EROSION PROTECTION	283
3+99	4+78	SHALLOW EROSION PROTECTION	79
7+24	8+26	DEEP EROSION PROTECTION	102
8+63	9+34	MEDIUM EROSION PROTECTION	71
BID ALTERNATE			
25+50	28+10	OPEN-CELLED GEOGRID EROSION PROTECTION	260
28+10	29+63	MEDIUM EROSION PROTECTION	153



DREDGING CROSS SECTION DETAIL

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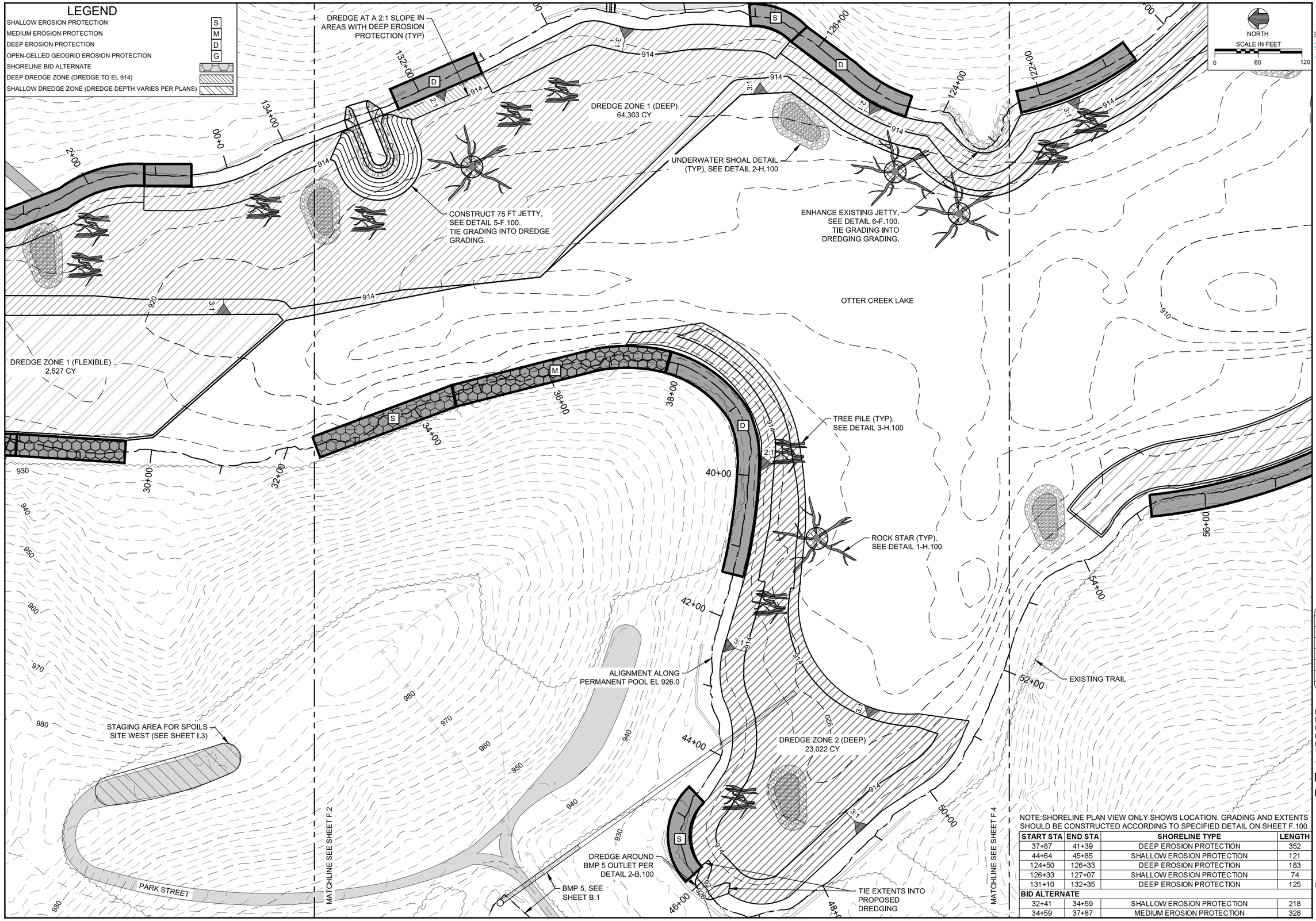
TITLE
LAKE PLAN
(1 OF 4)

SHEET
F.2



NOTE:SHORELINE PLAN VIEW ONLY SHOWS LOCATION. GRADING AND EXTENTS SHOULD BE CONSTRUCTED ACCORDING TO SPECIFIED DETAIL ON SHEET F.100.

START STA	END STA	SHORELINE TYPE	LENGTH
37+87	41+39	DEEP EROSION PROTECTION	352
44+64	45+85	SHALLOW EROSION PROTECTION	121
124+50	126+33	DEEP EROSION PROTECTION	183
126+33	127+07	SHALLOW EROSION PROTECTION	74
131+10	132+35	DEEP EROSION PROTECTION	125
BID ALTERNATE			
32+41	34+59	SHALLOW EROSION PROTECTION	218
34+59	37+87	MEDIUM EROSION PROTECTION	328

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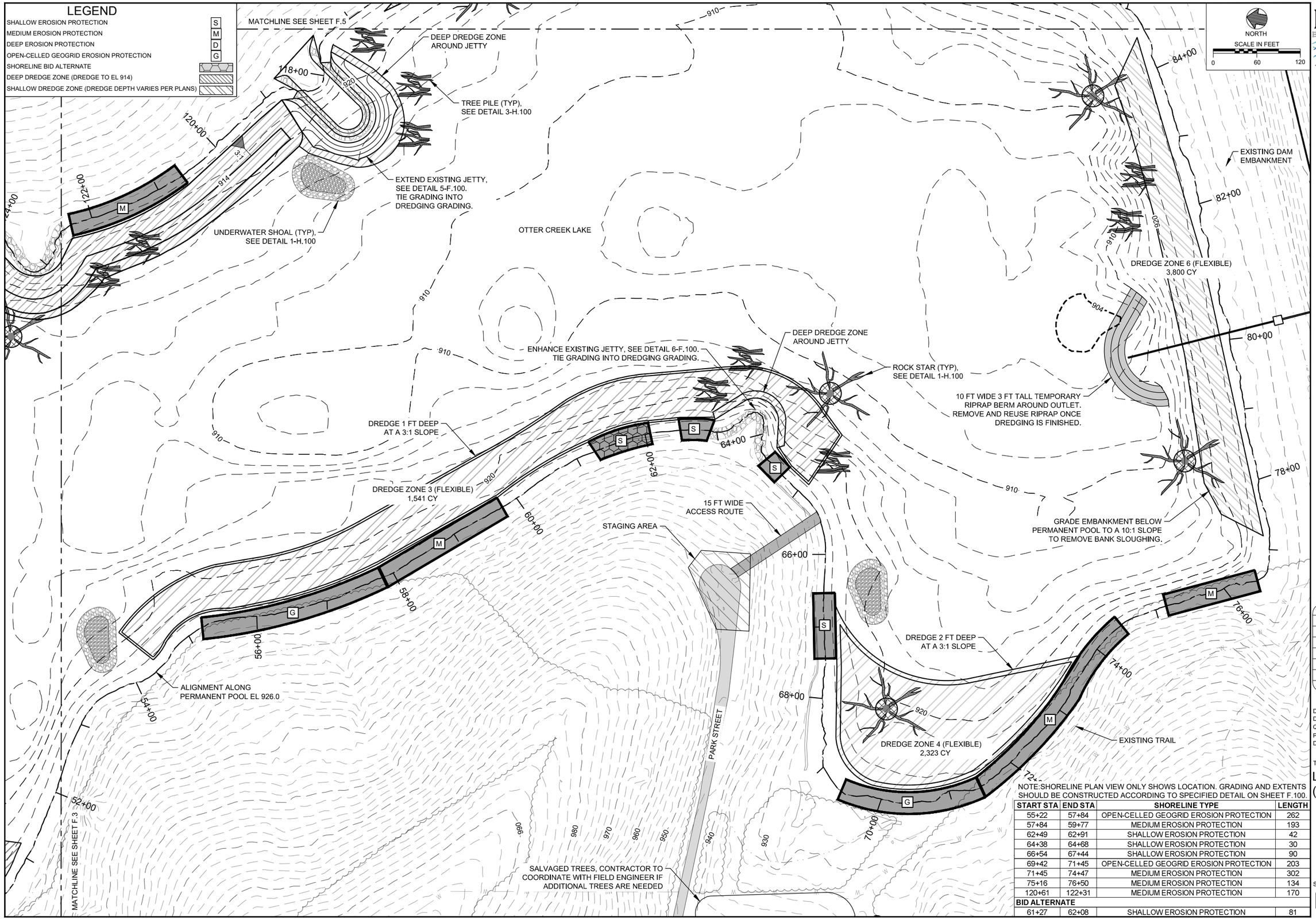
TITLE
LAKE PLAN
(2 OF 4)

SHEET
F.3

LEGEND

SHALLOW EROSION PROTECTION	S
MEDIUM EROSION PROTECTION	M
DEEP EROSION PROTECTION	D
OPEN-CELLED GEOGRID EROSION PROTECTION	G
SHORELINE BID ALTERNATE	
DEEP DREDGE ZONE (DREDGE TO EL 914)	
SHALLOW DREDGE ZONE (DREDGE DEPTH VARIES PER PLANS)	



NOTE:SHORELINE PLAN VIEW ONLY SHOWS LOCATION. GRADING AND EXTENTS SHOULD BE CONSTRUCTED ACCORDING TO SPECIFIED DETAIL ON SHEET F.100.

START STA	END STA	SHORELINE TYPE	LENGTH
55+22	57+84	OPEN-CELLED GEOGRID EROSION PROTECTION	262
57+84	59+77	MEDIUM EROSION PROTECTION	193
62+49	62+91	SHALLOW EROSION PROTECTION	42
64+38	64+68	SHALLOW EROSION PROTECTION	30
66+54	67+44	SHALLOW EROSION PROTECTION	90
69+42	71+45	OPEN-CELLED GEOGRID EROSION PROTECTION	203
71+45	74+47	MEDIUM EROSION PROTECTION	302
75+16	76+50	MEDIUM EROSION PROTECTION	134
120+61	122+31	MEDIUM EROSION PROTECTION	170
BID ALTERNATE			
61+27	62+08	SHALLOW EROSION PROTECTION	81

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TITLE

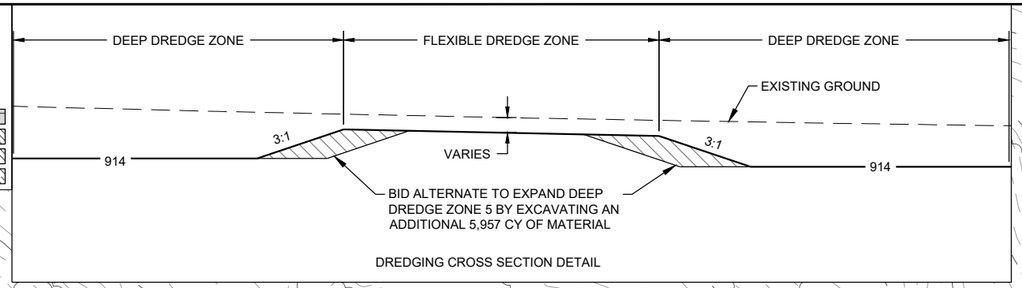
LAKE PLAN (3 OF 4)

SHEET

F.4

LEGEND

- SHALLOW EROSION PROTECTION — S
- MEDIUM EROSION PROTECTION — M
- DEEP EROSION PROTECTION — D
- OPEN-CELLED GEOGRID EROSION PROTECTION — G
- SHORELINE BID ALTERNATE
- DEEP DREDGE ZONE (DREDGE TO EL 914)
- FLEXIBLE DREDGE ZONE (DREDGE DEPTH VARIES PER PLANS)
- SHALLOW DREDGE ZONE (DREDGE 5 FT DEEP)



DREDGING CROSS SECTION DETAIL

NORTH

SCALE IN FEET 0 60 120

NOTE:SHORELINE PLAN VIEW ONLY SHOWS LOCATION. GRADING AND EXTENTS SHOULD BE CONSTRUCTED ACCORDING TO SPECIFIED DETAIL ON SHEET F.100.

START STA	END STA	SHORELINE TYPE	LENGTH
104+17	105+46	DEEP EROSION PROTECTION	129
105+46	108+69	SHALLOW EROSION PROTECTION	323
108+69	112+93	MEDIUM EROSION PROTECTION	424
114+14	115+87	DEEP EROSION PROTECTION	173

EXISTING TRAIL

LOCAL PARK ROAD

SPOILS SITE SOUTH, SEE SHEET I.1

DREDGE AT A 2:1 SLOPE IN AREAS WITH DEEP EROSION PROTECTION (TYP)

DREDGE ZONE 5 (DEEP) 26,736 CY

DREDGE ZONE 5 (FLEXIBLE) 6,597 CY

DREDGE ZONE 5 (SHALLOW) 2,215 CY

CONSTRUCT 75 FT JETTY, SEE DETAIL 5-F.100. TIE GRADING INTO DREDGING GRADING.

DREDGE 6,597 CY FROM THE FLEXIBLE DREDGE ZONE. DEPTHS MAY VARY. SEE DETAIL ABOVE FOR CROSS SECTION.

ALIGNMENT ALONG PERMANENT POOL EL 926.0

STAGING AREA

TREE PILE (TYP), SEE DETAIL 3-H.100

UNDERWATER SHOAL (TYP), SEE DETAIL 2-H.100

ROCK STAR (TYP), SEE DETAIL 1-H.100

DREDGE 5 FT DEEP AT A 3:1 SLOPE. TIE INTO DEEP ZONE GRADING.

OTTER CREEK LAKE

MATCHLINE SEE SHEET F.4

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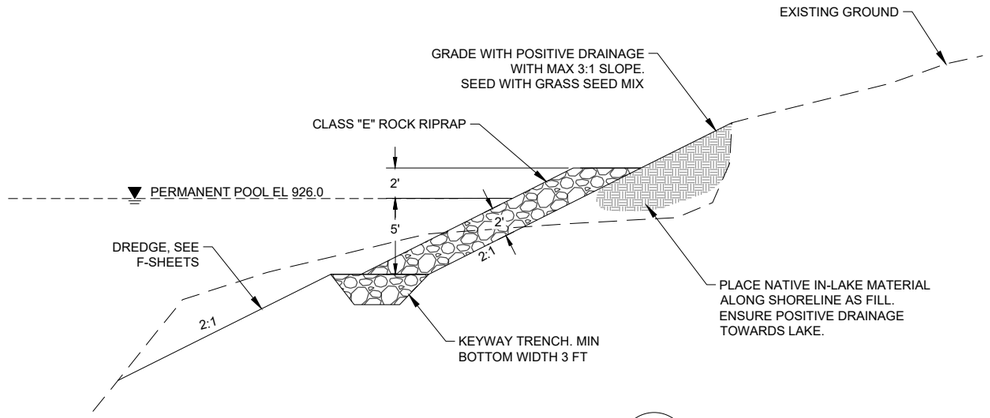
TITLE

LAKE PLAN (4 OF 4)

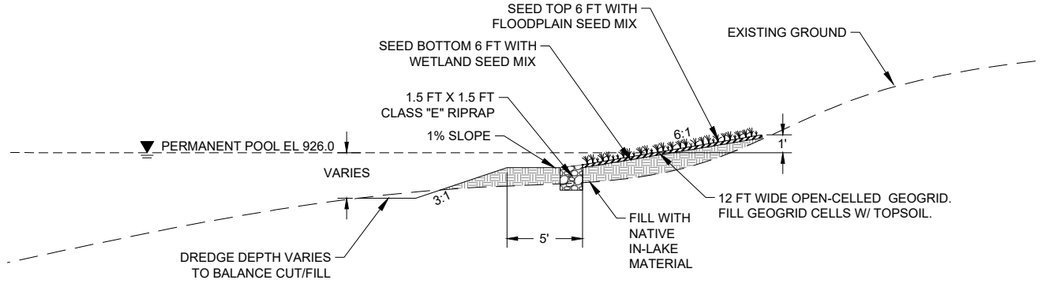
SHEET

F.5



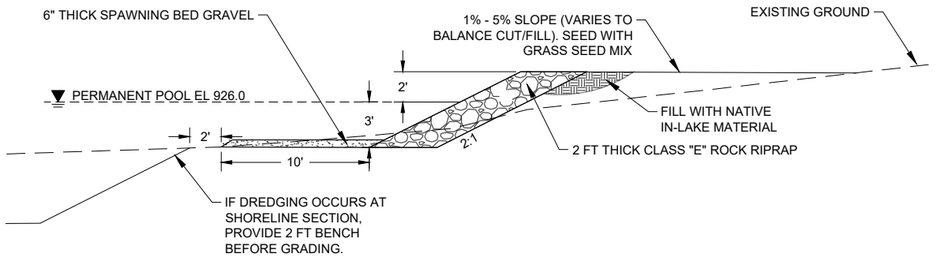
DEEP EROSION PROTECTION — 1 / F.100

NOT TO SCALE



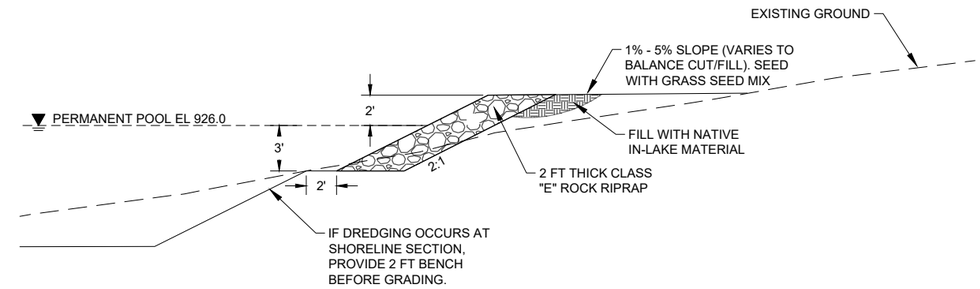
OPEN-CELLED GEOGRID EROSION PROTECTION — 2 / F.100

NOT TO SCALE



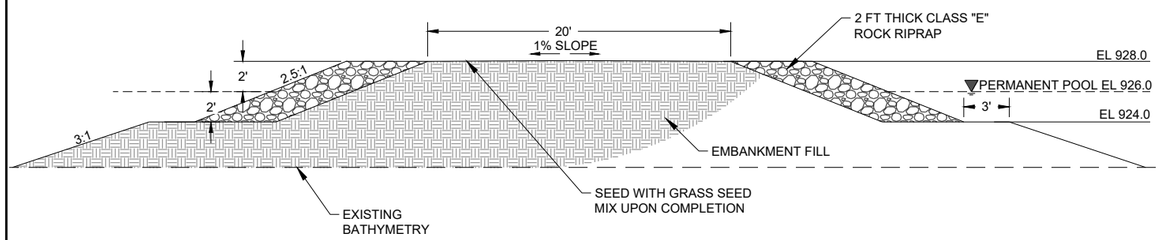
SHALLOW EROSION PROTECTION WITH GRAVEL BED — 3 / F.100

NOT TO SCALE



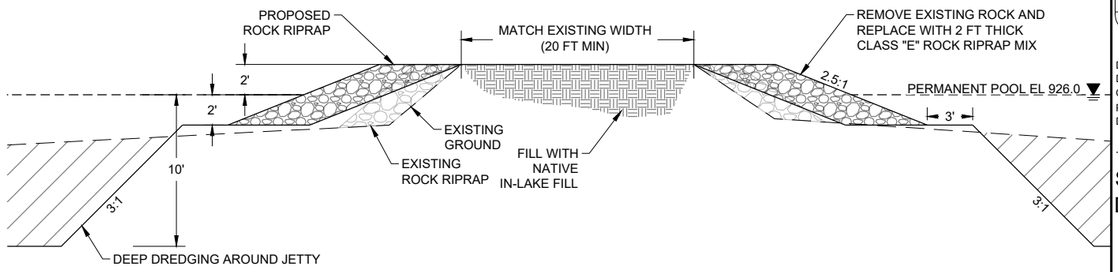
MEDIUM EROSION PROTECTION — 4 / F.100

NOT TO SCALE



JETTY CROSS SECTION — 5 / F.100

NOT TO SCALE



JETTY ENHANCEMENT DETAIL — 6 / F.100

NOT TO SCALE

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2021

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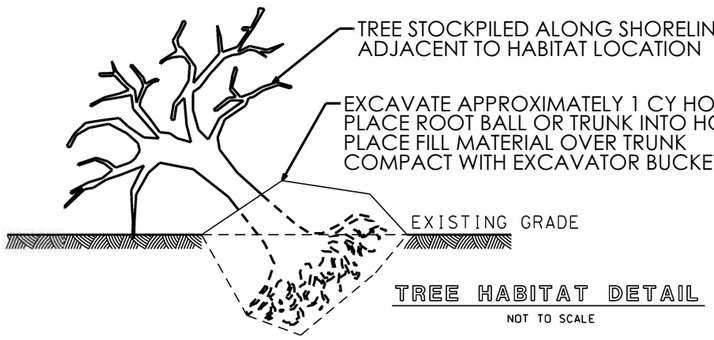
TITLE
SHORELINE DETAILS

SHEET
F.100

NOTE:
Rock Reefs consist of approximately 45 tons of limestone shot rock placed on the lake bed at a thickness of 2-3 feet. Locations shown are approximate, actual locations will be designated in the field by the DNR Engineer.

Tree Habitat (see detail this sheet) shall be paid on an hourly basis under the Misc. Excavator Work line item. The contractor shall place and secure trees with a 200 H.P (min.) excavator. Trees shall be furnished by the DNR and stockpiled in various locations along the shoreline. Placement shall be field-located by the DNR Engineer.



TREE HABITAT DETAIL
NOT TO SCALE

N

ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF
ROCK REEF

0 FEET 300

CONSULTANT:

IOWA DEPARTMENT OF NATURAL RESOURCES
ENGINEERING SERVICES - WALLACE BUILING
502 E. 9TH ST., DES MOINES, IA 50319-0034

FISH HABITAT

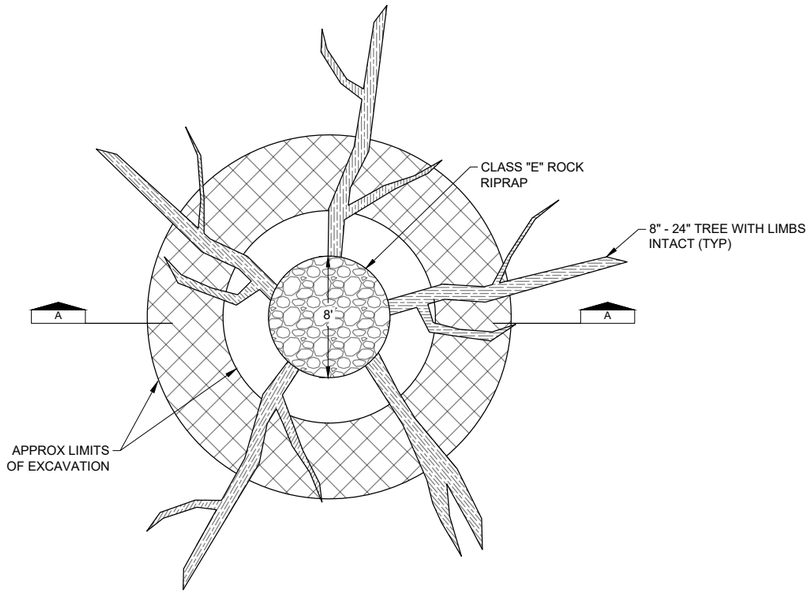
LAKE RESTORATION - PHASE 3 FOR:
OTTER CREEK LAKE

TAMA COUNTY

NO.	BY DATE	REVISION

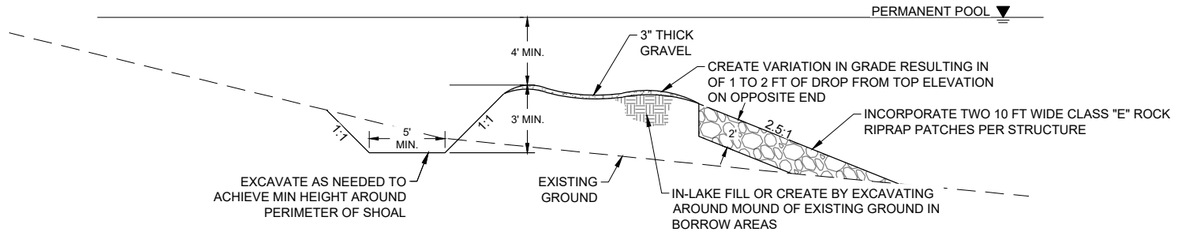
DRAWN BY:
PROJECT NUMBER: 21-05-86-02
CHK'D BY:
DATE:

SHEET No: H.1



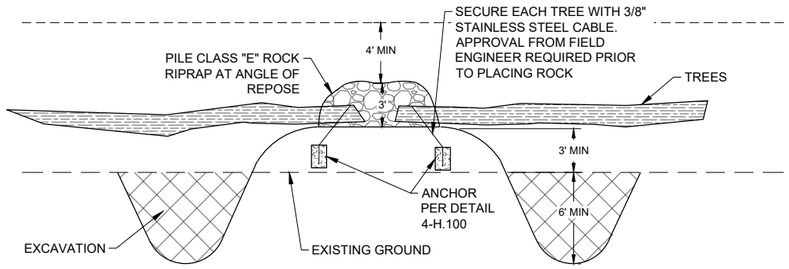
ROCK STARS TYPICAL PLAN VIEW 1 H.100

NOT TO SCALE



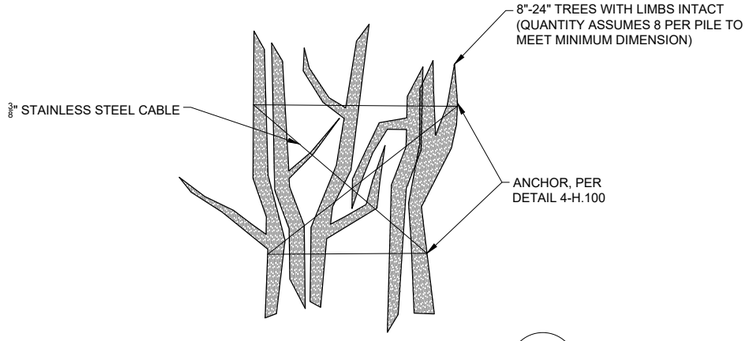
UNDERWATER SHOAL DETAIL 2 H.100

NOT TO SCALE



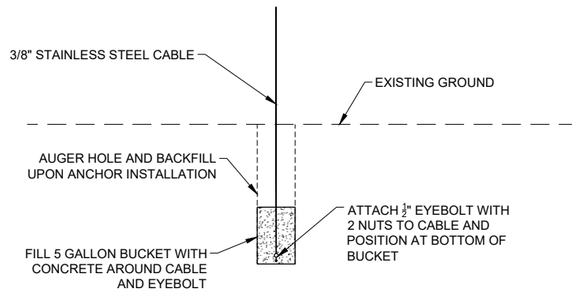
ROCK STARS TYPICAL SECTION A

NOT TO SCALE



TREE PILES TYPICAL PLAN VIEW 3 H.100

NOT TO SCALE



CABLE ANCHOR DETAIL 4 H.100

NOT TO SCALE

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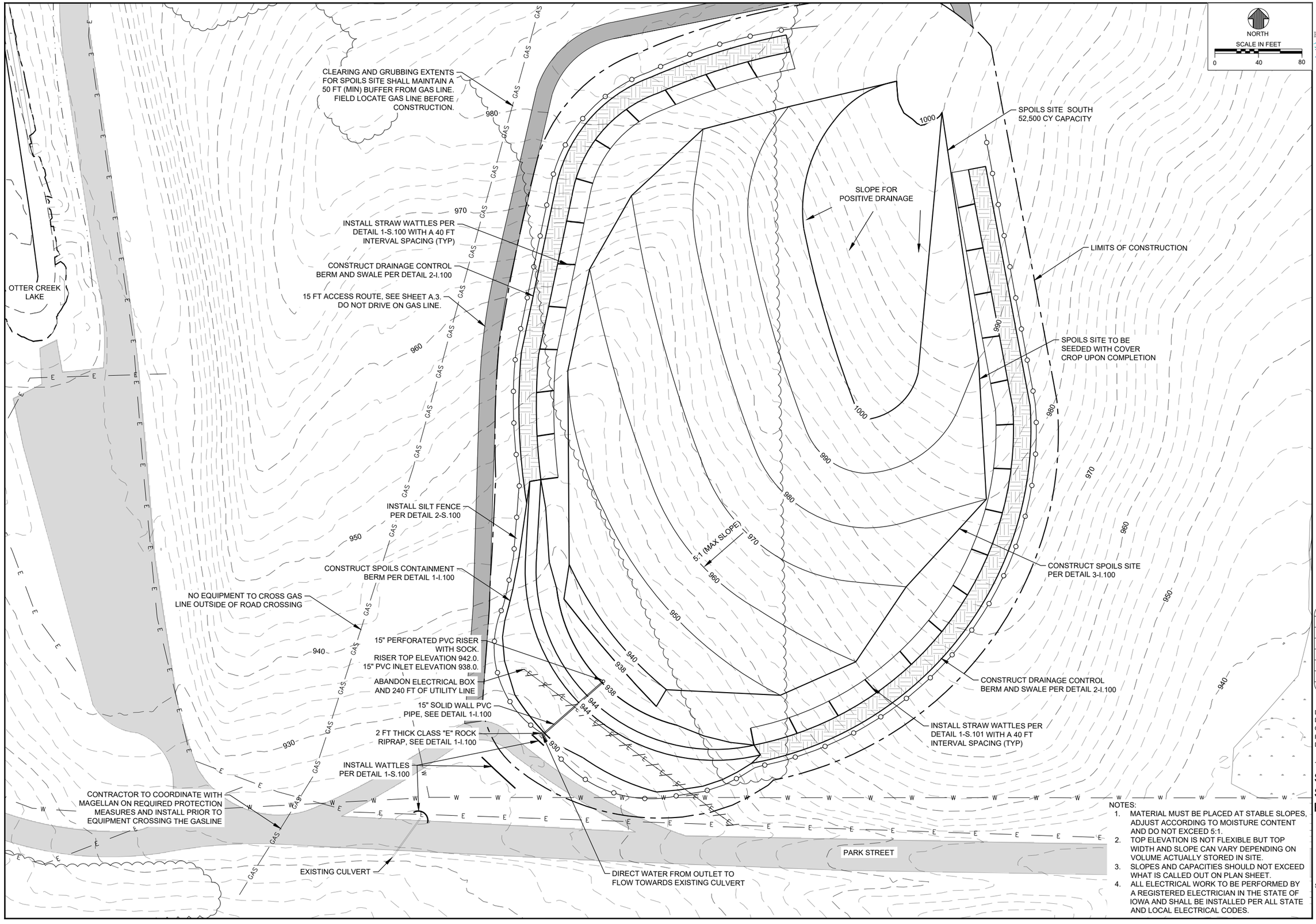
TITLE
FISH HABITAT DETAILS

SHEET
H.100



NOTES:

1. MATERIAL MUST BE PLACED AT STABLE SLOPES, ADJUST ACCORDING TO MOISTURE CONTENT AND DO NOT EXCEED 5:1.
2. TOP ELEVATION IS NOT FLEXIBLE BUT TOP WIDTH AND SLOPE CAN VARY DEPENDING ON VOLUME ACTUALLY STORED IN SITE.
3. SLOPES AND CAPACITIES SHOULD NOT EXCEED WHAT IS CALLED OUT ON PLAN SHEET.
4. ALL ELECTRICAL WORK TO BE PERFORMED BY A REGISTERED ELECTRICIAN IN THE STATE OF IOWA AND SHALL BE INSTALLED PER ALL STATE AND LOCAL ELECTRICAL CODES.

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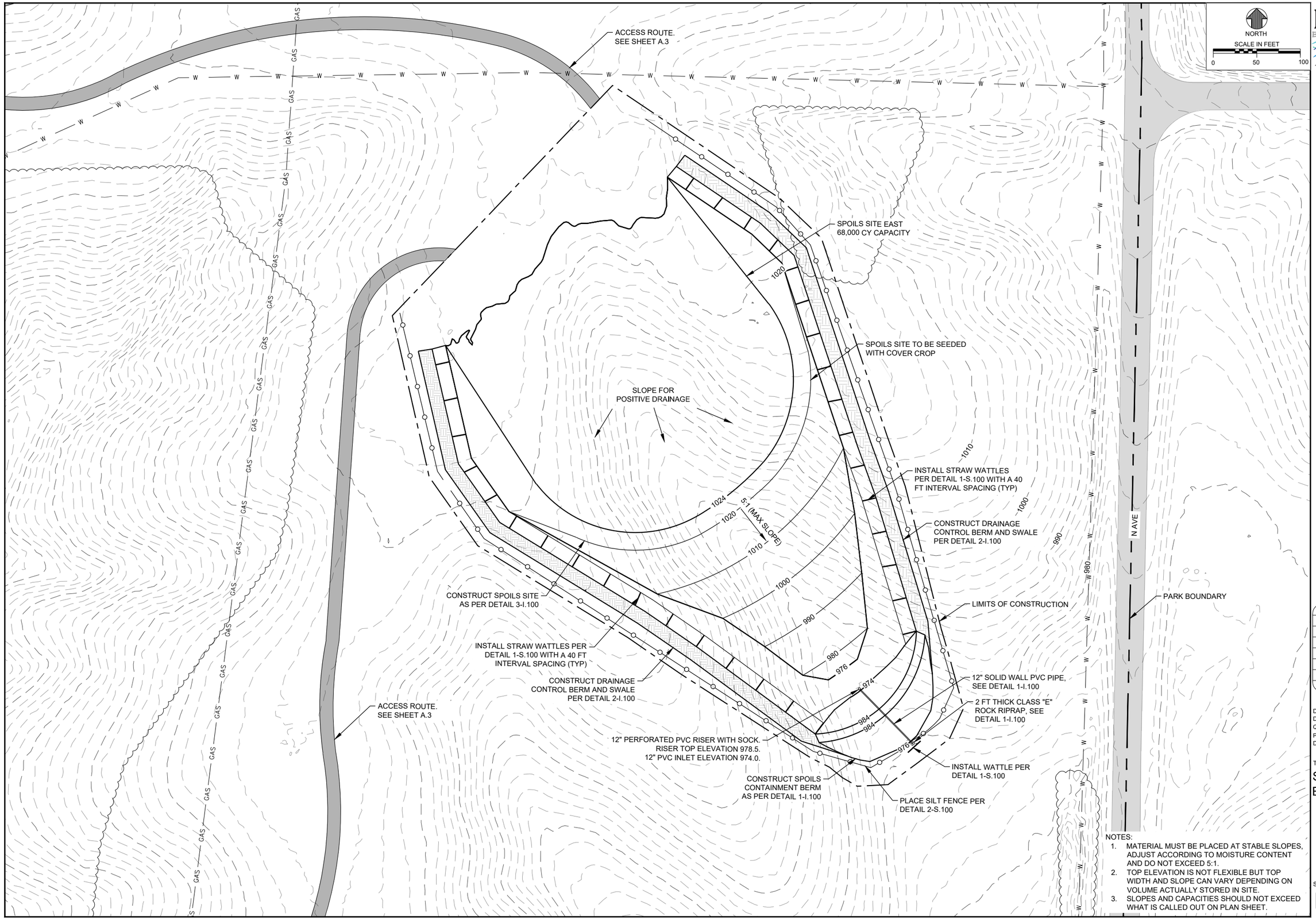
SPOILS SITE SOUTH PLAN

SHEET

I.1



NOTES:

1. MATERIAL MUST BE PLACED AT STABLE SLOPES, ADJUST ACCORDING TO MOISTURE CONTENT AND DO NOT EXCEED 5:1.
2. TOP ELEVATION IS NOT FLEXIBLE BUT TOP WIDTH AND SLOPE CAN VARY DEPENDING ON VOLUME ACTUALLY STORED IN SITE.
3. SLOPES AND CAPACITIES SHOULD NOT EXCEED WHAT IS CALLED OUT ON PLAN SHEET.

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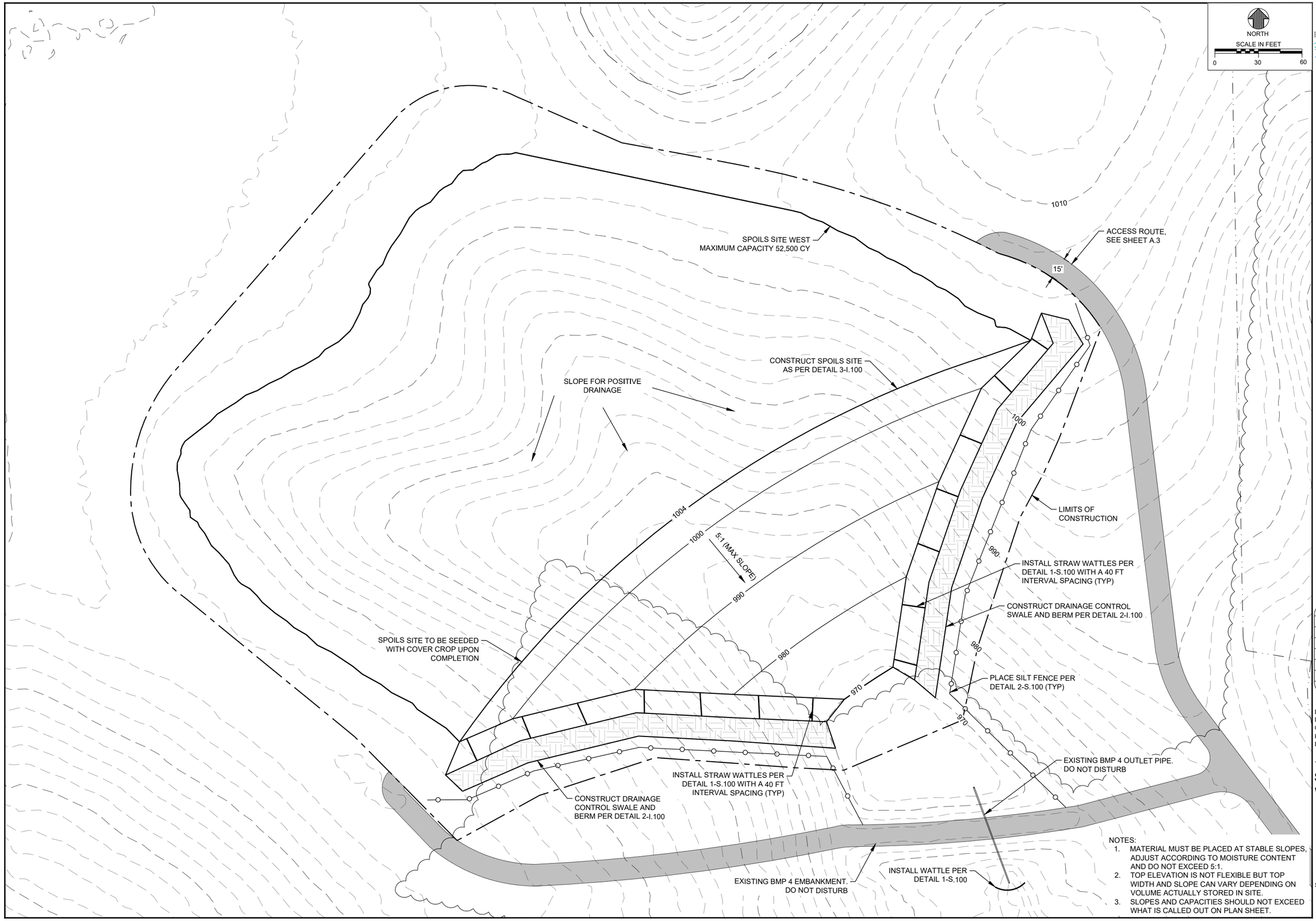
TITLE

SPOILS SITE EAST PLAN

SHEET

I.2



NOTES:

1. MATERIAL MUST BE PLACED AT STABLE SLOPES, ADJUST ACCORDING TO MOISTURE CONTENT AND DO NOT EXCEED 5:1.
2. TOP ELEVATION IS NOT FLEXIBLE BUT TOP WIDTH AND SLOPE CAN VARY DEPENDING ON VOLUME ACTUALLY STORED IN SITE.
3. SLOPES AND CAPACITIES SHOULD NOT EXCEED WHAT IS CALLED OUT ON PLAN SHEET.

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

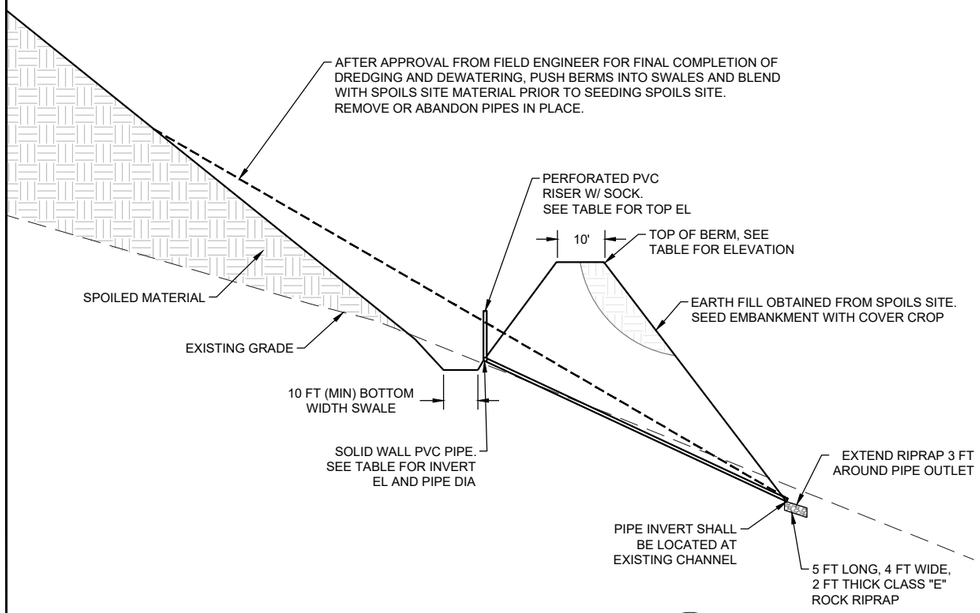
DESIGNED BY:	SEM
DRAWN BY:	CKW
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE

SPOILS SITE WEST PLAN

SHEET

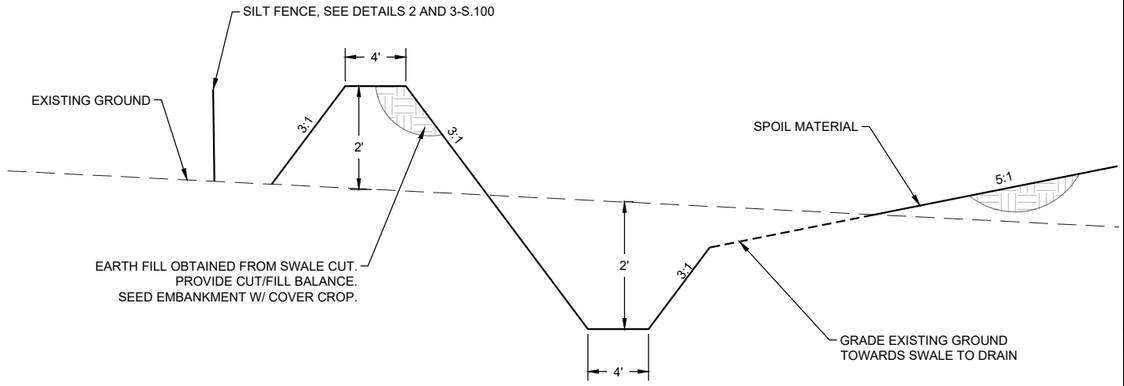
I.3



SPOILS CONTAINMENT BERM DETAIL 1
I.100

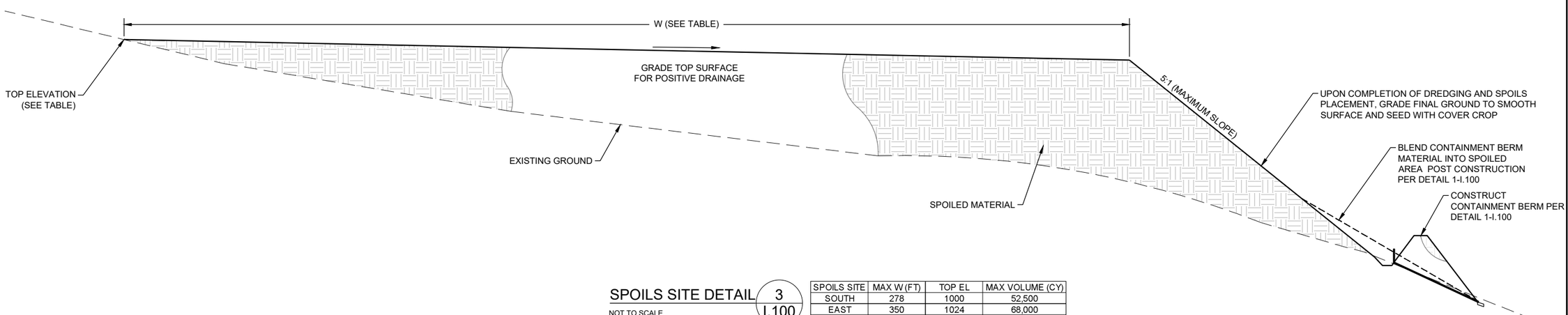
NOT TO SCALE

SPOILS SITE	TOP OF BERM EL	PVC PIPE DIA	PVC PIPE INLET INVERT EL	RISER TOP EL
SOUTH	944.0	15"	938.0	942.0
EAST	984.0	12"	974.0	978.5
WEST	N/A	N/A	N/A	N/A



DRAINAGE CONTROL BERM AND SWALE DETAIL 2
I.100

NOT TO SCALE



SPOILS SITE DETAIL 3
I.100

NOT TO SCALE

SPOILS SITE	MAX W (FT)	TOP EL	MAX VOLUME (CY)
SOUTH	278	1000	52,500
EAST	350	1024	68,000
WEST	270	1004	52,500

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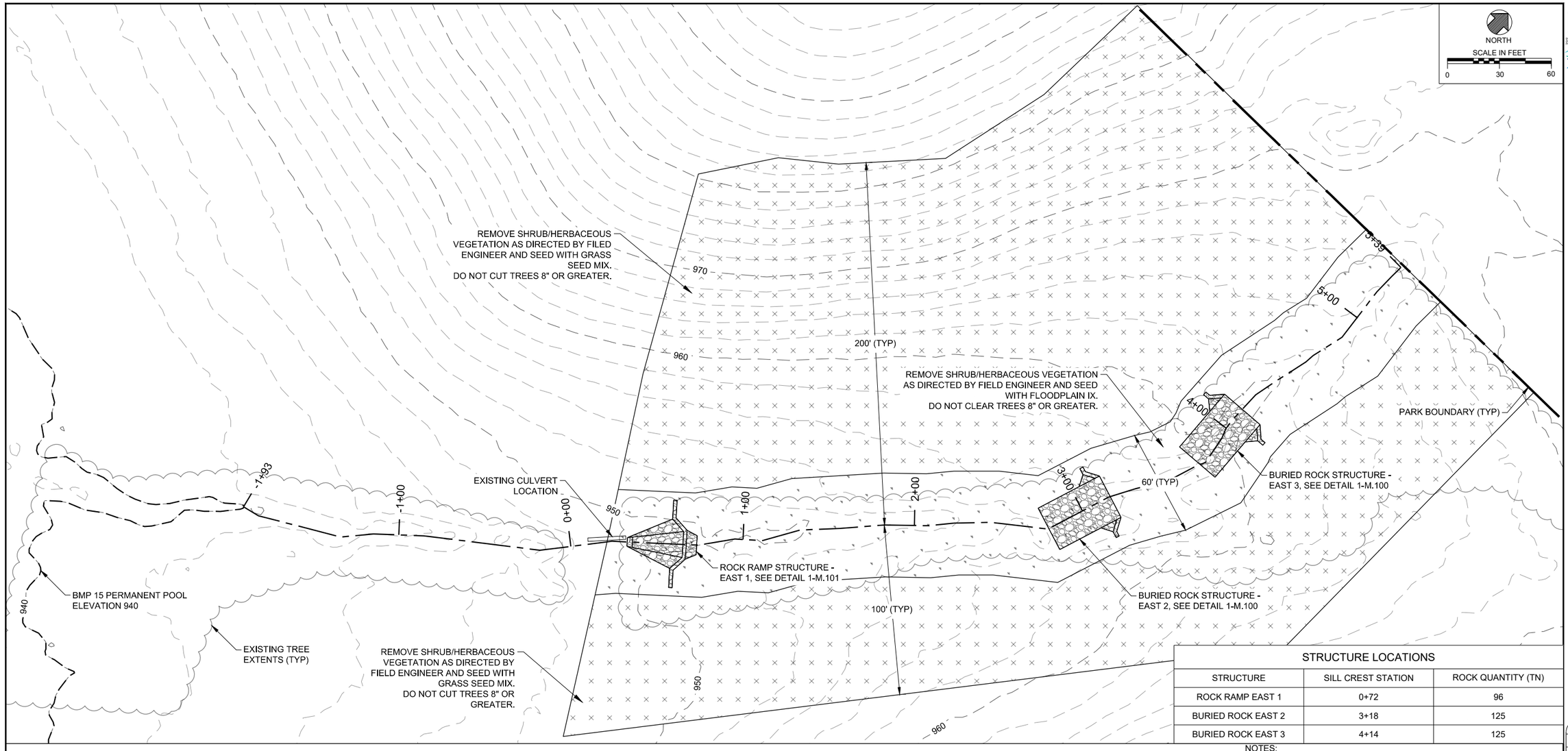
TITLE
SPOILS DETAILS

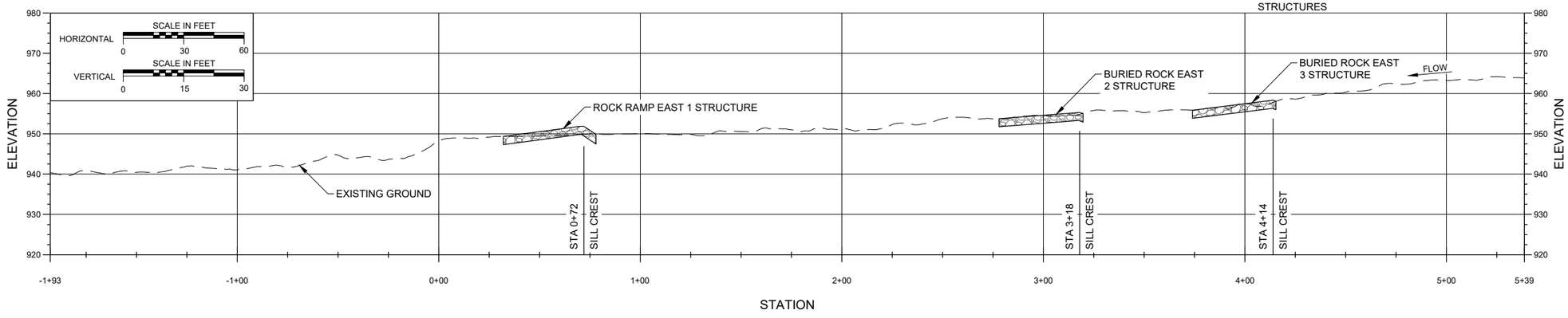
SHEET
I.100



PLAN VIEW

STRUCTURE LOCATIONS		
STRUCTURE	SILL CREST STATION	ROCK QUANTITY (TN)
ROCK RAMP EAST 1	0+72	96
BURIED ROCK EAST 2	3+18	125
BURIED ROCK EAST 3	4+14	125

NOTES:
1. ELEVATIONS SHOWN ON PROFILE VIEW ARE APPROXIMATE. STRUCTURES SHOULD BE CONSTRUCTED BASED ON EXISTING CONDITIONS ON SITE
2. REMOVE EXISTING TREES AS NECESSARY TO CONSTRUCT STRUCTURES



PROFILE VIEW

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

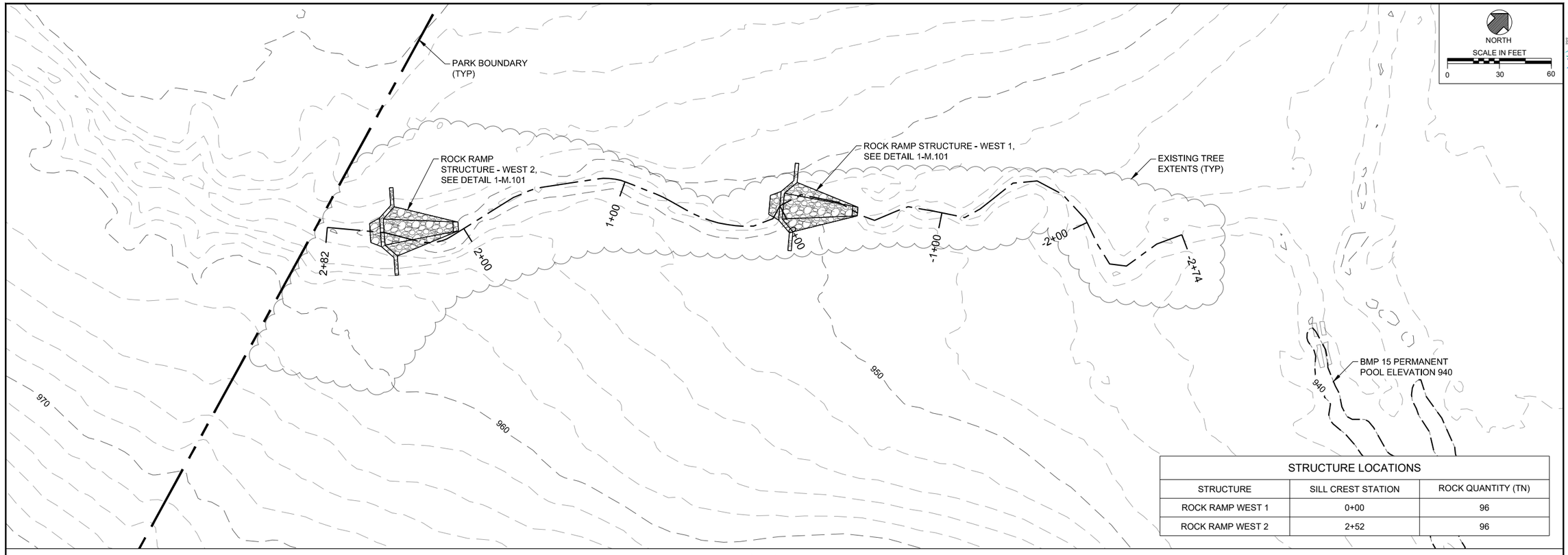
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: RAR
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
EAST SITE PLAN VIEW

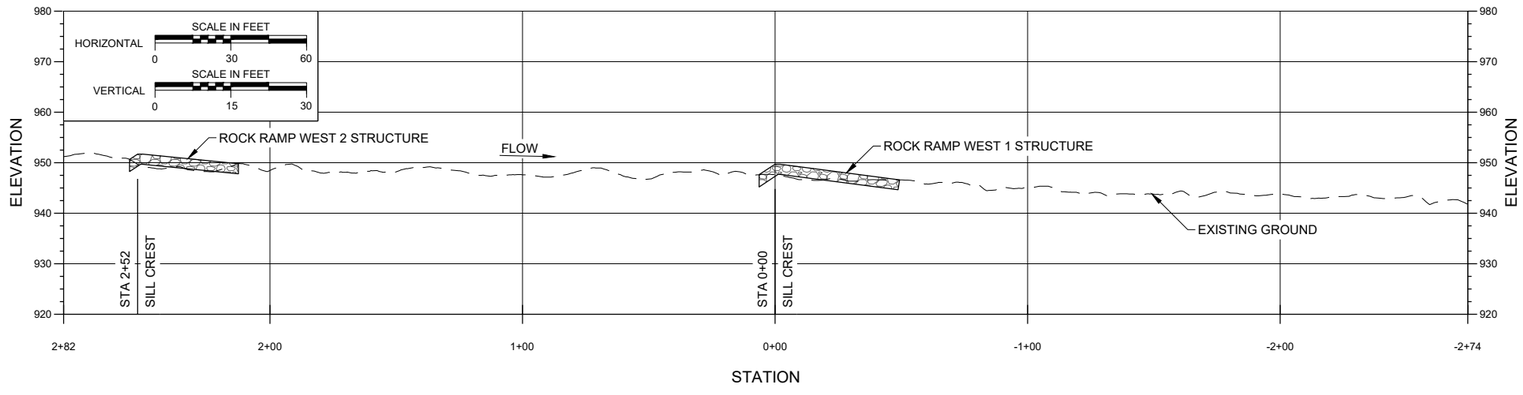
SHEET
M.1



STRUCTURE LOCATIONS		
STRUCTURE	SILL CREST STATION	ROCK QUANTITY (TN)
ROCK RAMP WEST 1	0+00	96
ROCK RAMP WEST 2	2+52	96

PLAN VIEW

NOTES:
1. ELEVATIONS SHOWN ON PROFILE VIEW ARE APPROXIMATE. STRUCTURES SHOULD BE CONSTRUCTED BASED ON EXISTING CONDITIONS ON SITE
2. REMOVE EXISTING TREES AS NECESSARY TO CONSTRUCT STRUCTURES



PROFILE VIEW

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
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ENGINEER'S SEAL

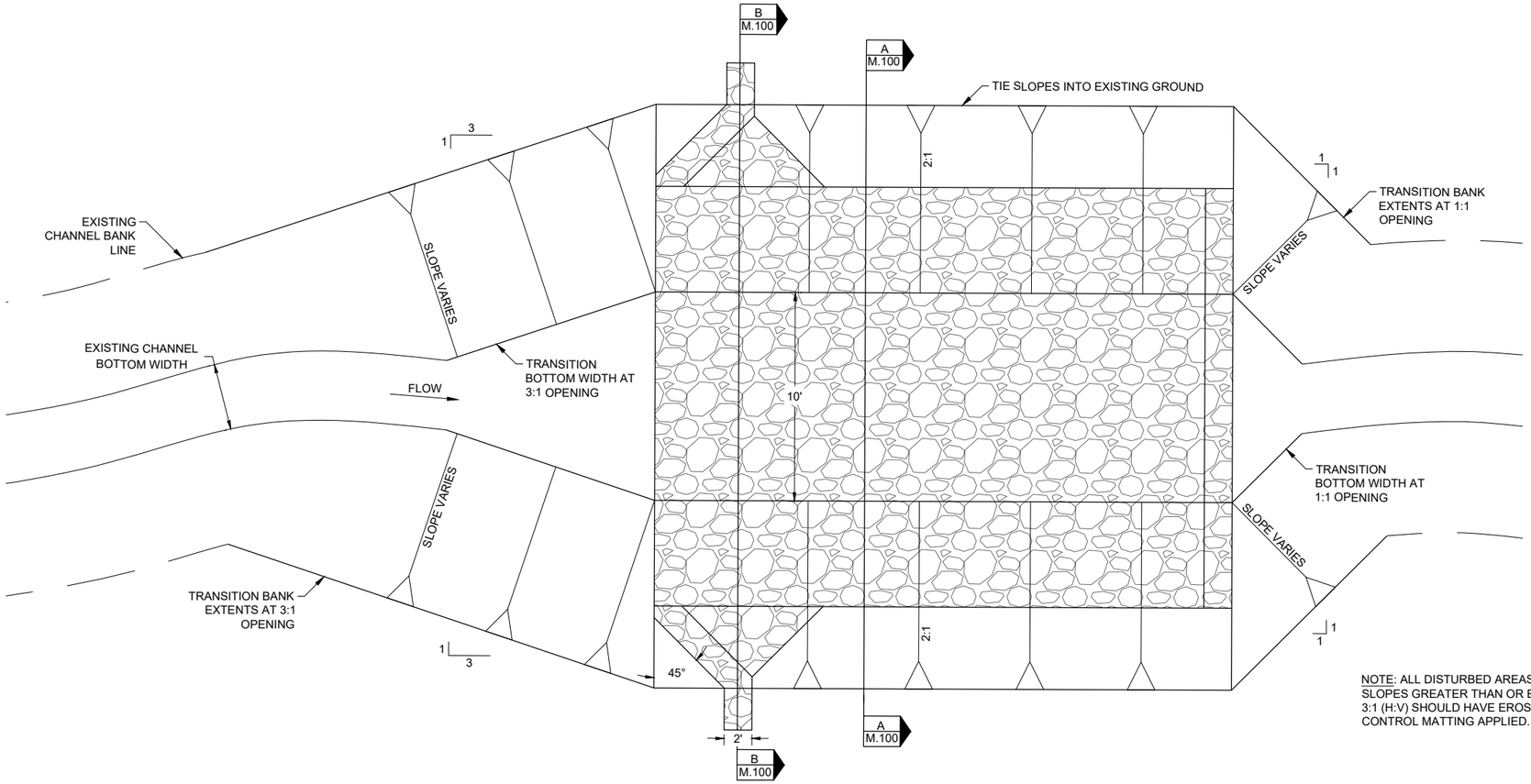
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: RAR
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
WEST SITE
PLAN VIEW

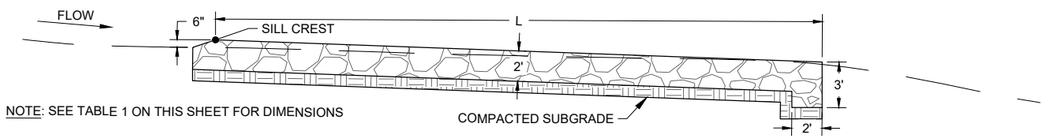
SHEET
M.2



NOTE: ALL DISTURBED AREAS WITH SLOPES GREATER THAN OR EQUAL TO 3:1 (H:V) SHOULD HAVE EROSION CONTROL MATTING APPLIED.

PLAN VIEW

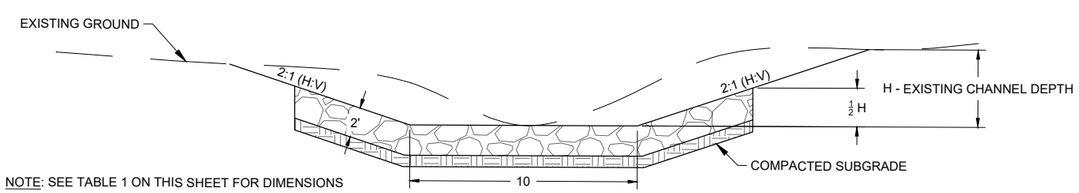
TABLE 1 - DIMENSIONS		
STRUCTURE	L (FT)	H (FT)
BURIED ROCK - EAST 2	40	3 (FIELD VERIFY)
BURIED ROCK - EAST 3	40	3 (FIELD VERIFY)



NOTE: SEE TABLE 1 ON THIS SHEET FOR DIMENSIONS

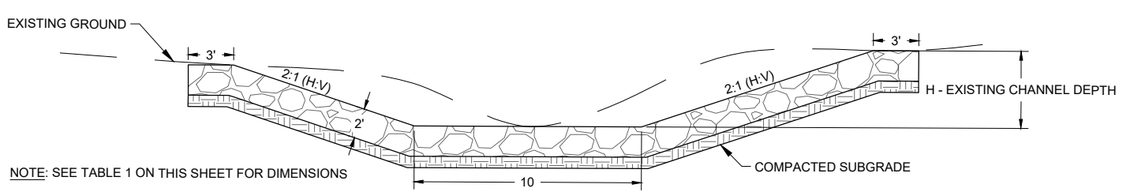
PROFILE VIEW

BURIED ROCK PLAN AND PROFILE DETAIL 1 / M.100
NOT TO SCALE



NOTE: SEE TABLE 1 ON THIS SHEET FOR DIMENSIONS

BURIED ROCK CROSS SECTION DETAIL A / M.100
NOT TO SCALE



NOTE: SEE TABLE 1 ON THIS SHEET FOR DIMENSIONS

SILL CROSS SECTION DETAIL B / M.100
NOT TO SCALE

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OTTER CREEK LAKE RESTORATION PHASE 3
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TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

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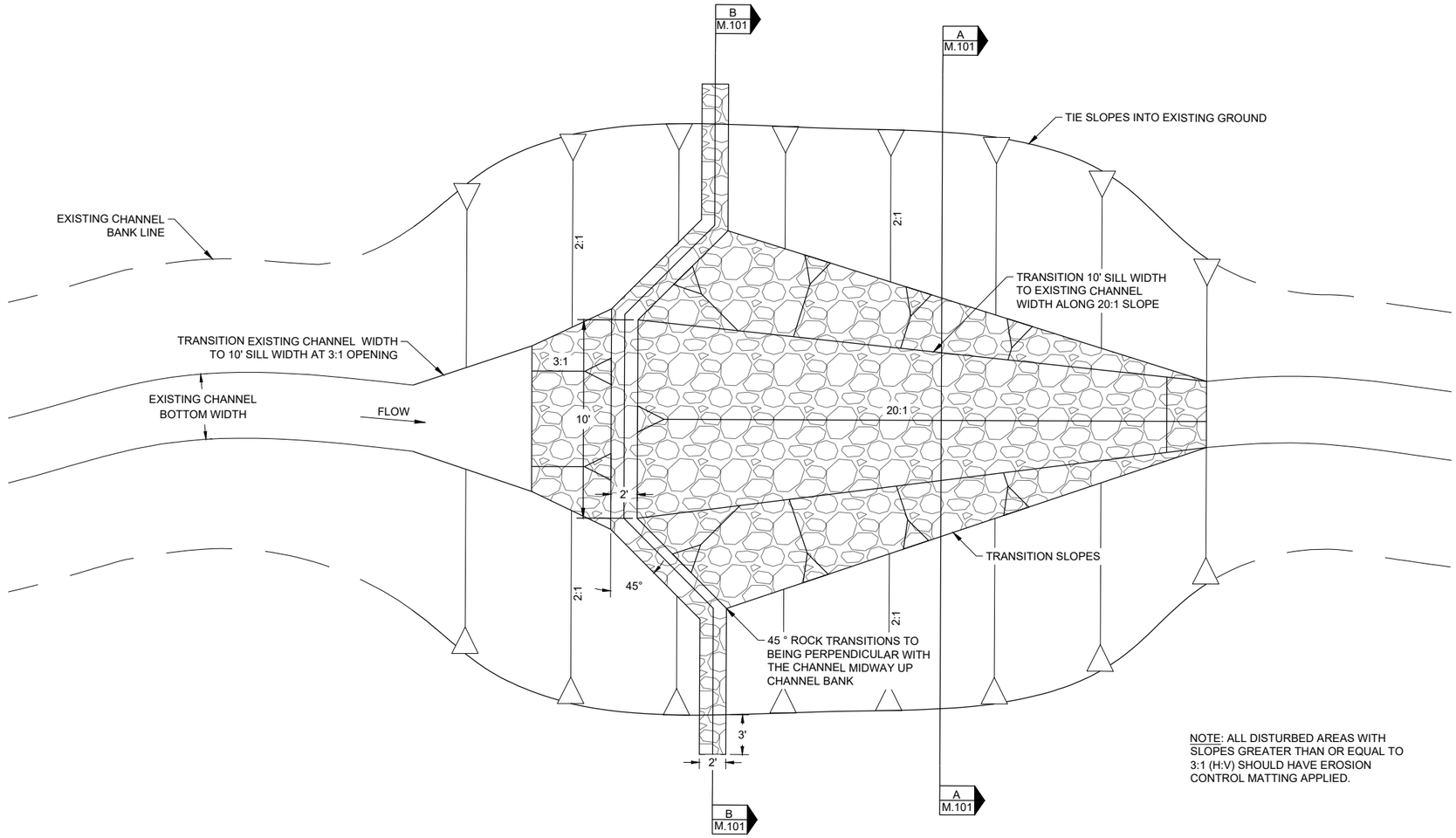
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE
STREAM MITIGATION DETAILS (1 OF 2)

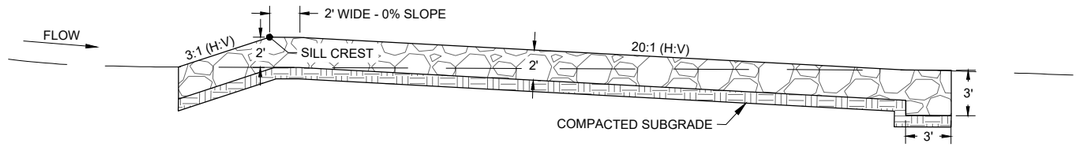
SHEET
M.100



NOTE: ALL DISTURBED AREAS WITH SLOPES GREATER THAN OR EQUAL TO 3:1 (H:V) SHOULD HAVE EROSION CONTROL MATTING APPLIED.

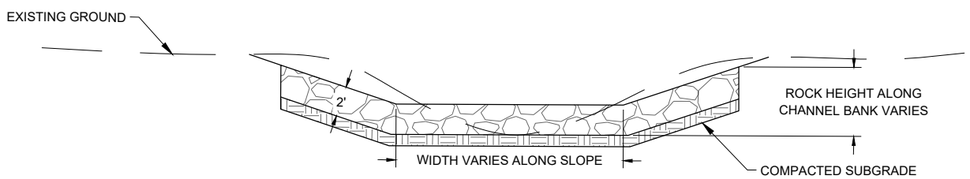
PLAN VIEW

TABLE 1 - DIMENSIONS	
STRUCTURE	H (FT)
ROCK RAMP - EAST 1	3 (FIELD VERIFY)
ROCK RAMP - WEST 1	4 (FIELD VERIFY)
ROCK RAMP - WEST 2	4 (FIELD VERIFY)

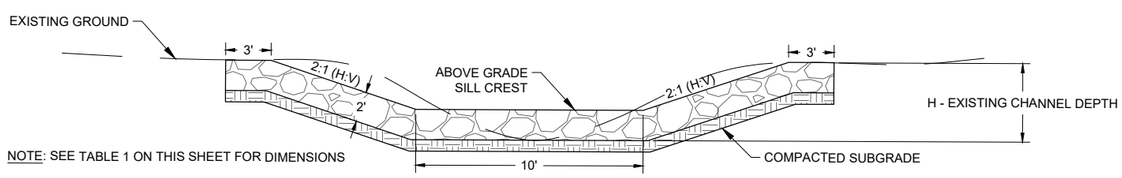


PROFILE VIEW

ROCK RAMP PLAN AND PROFILE DETAIL 1 / M.101
NOT TO SCALE



BURIED ROCK CROSS SECTION DETAIL A / M.101
NOT TO SCALE



SILL CROSS SECTION DETAIL B / M.101
NOT TO SCALE

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ENGINEER'S SEAL

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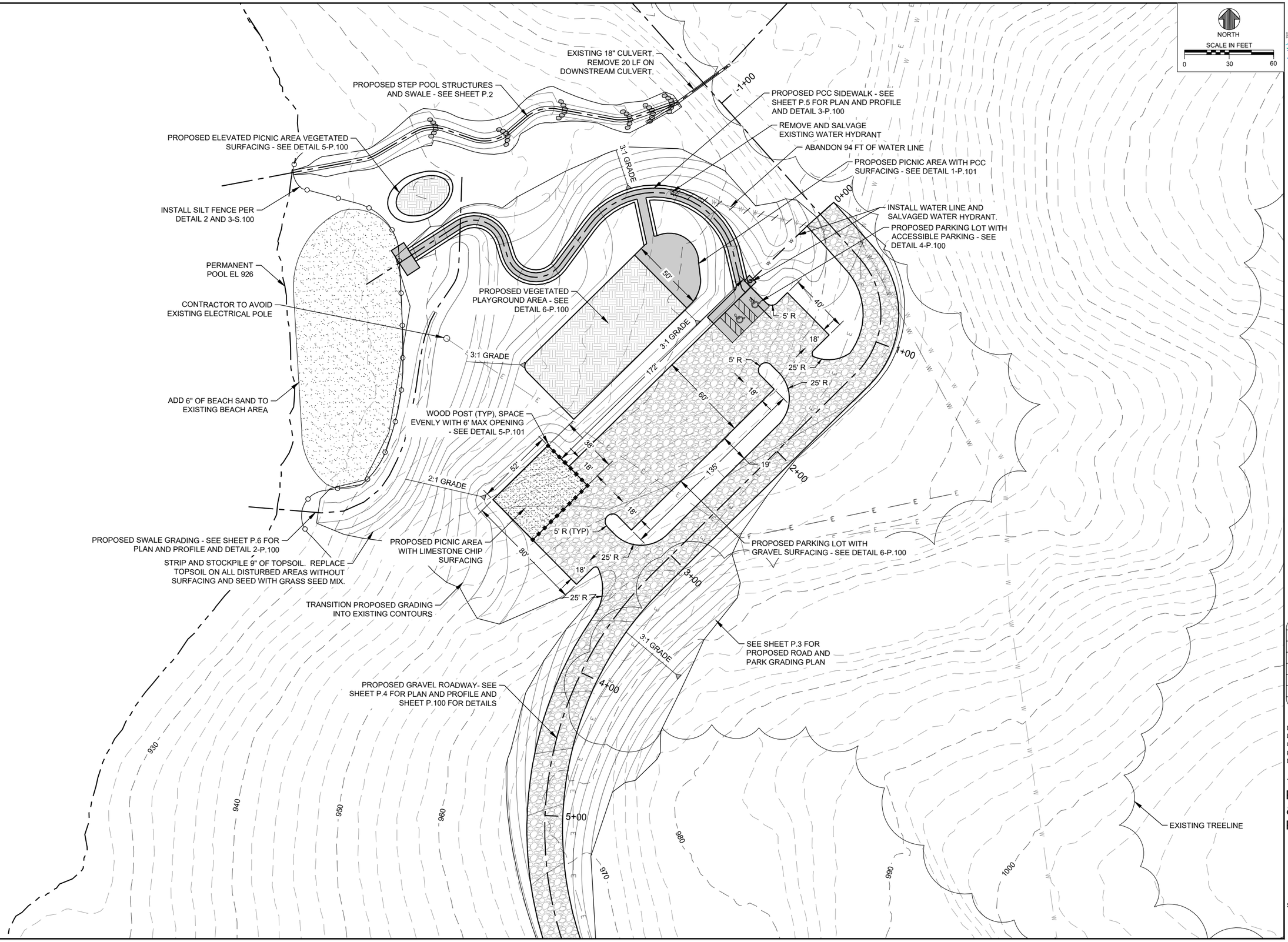
TITLE
STREAM MITIGATION DETAILS (2 OF 2)

SHEET
M.101



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TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

DESIGNED BY:	SEM
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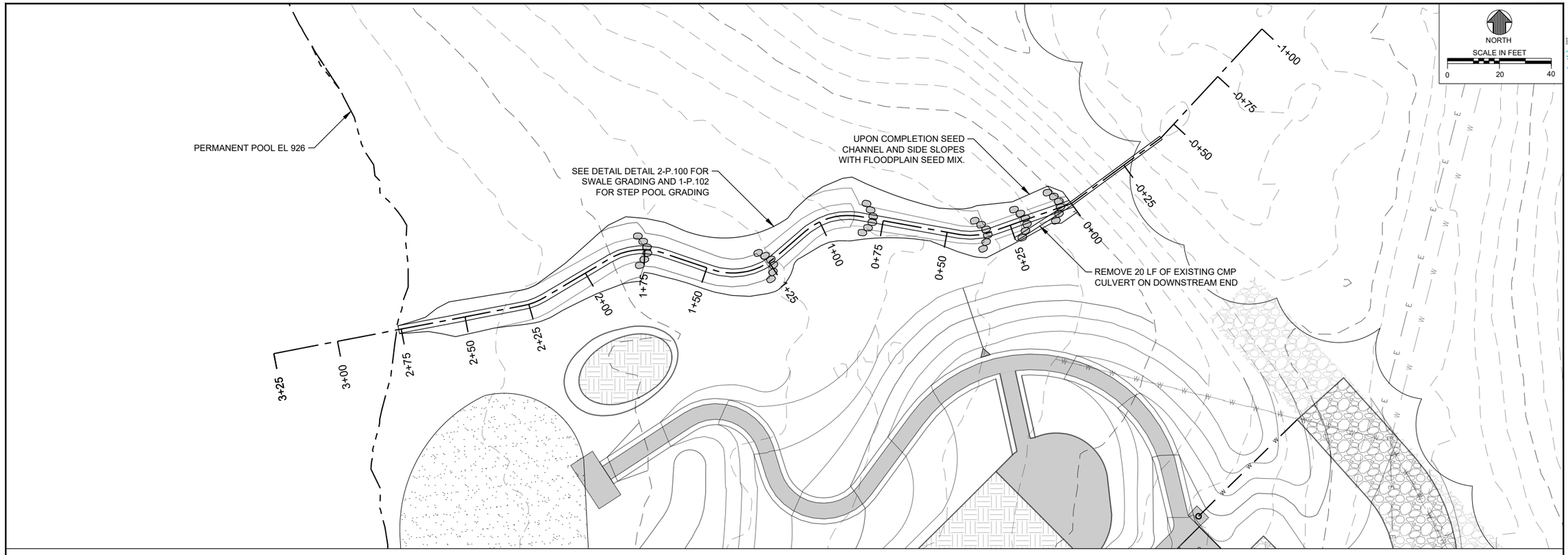
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE

PLAYGROUND & BEACH SITE PLAN

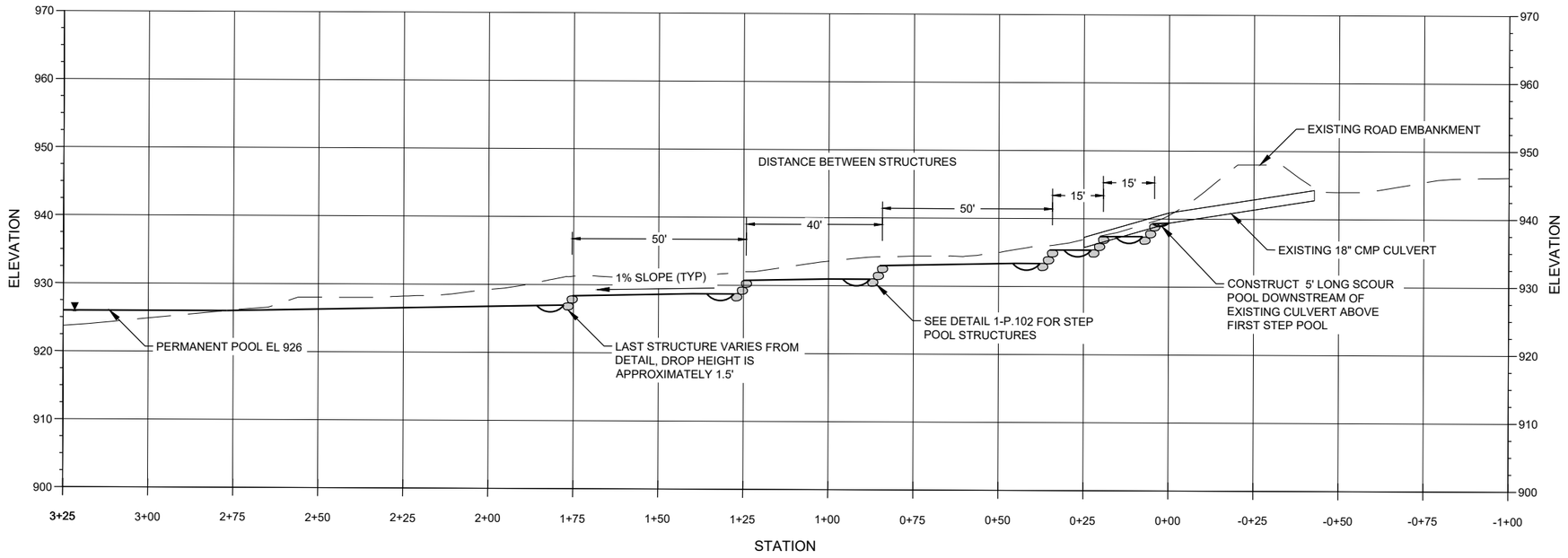
SHEET

P.1



PLAN VIEW

SCALE IN FEET
HORIZONTAL 0 20 40
SCALE IN FEET
VERTICAL 0 10 20



PROFILE VIEW

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OTTER CREEK LAKE RESTORATION PHASE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
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ENGINEER'S SEAL

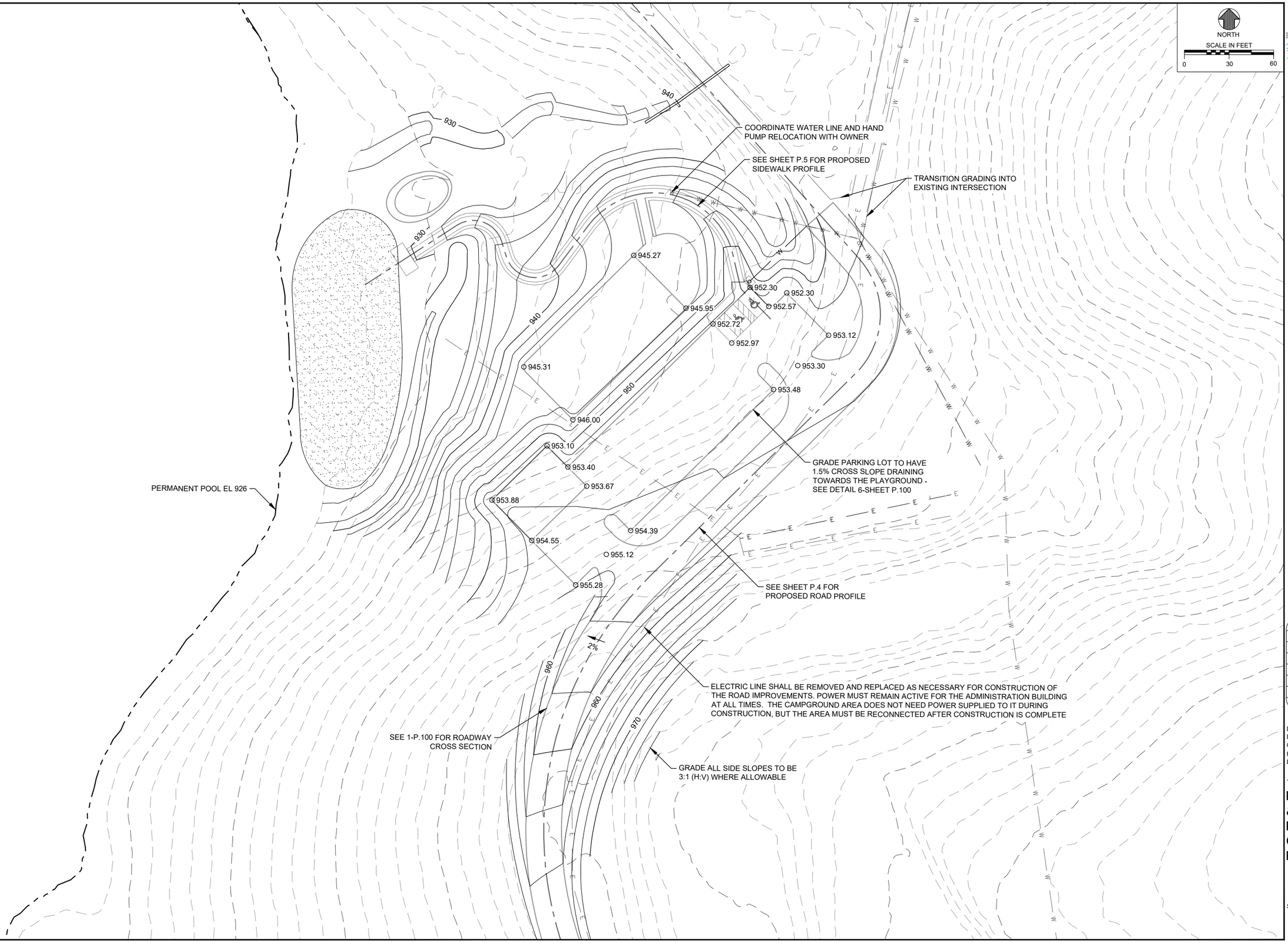
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: RAR
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
STEP POOL SWALE PLAN AND PROFILE

SHEET
P.2



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2021

ENGINEER'S SEAL

REVISIONS

NO.	DATE

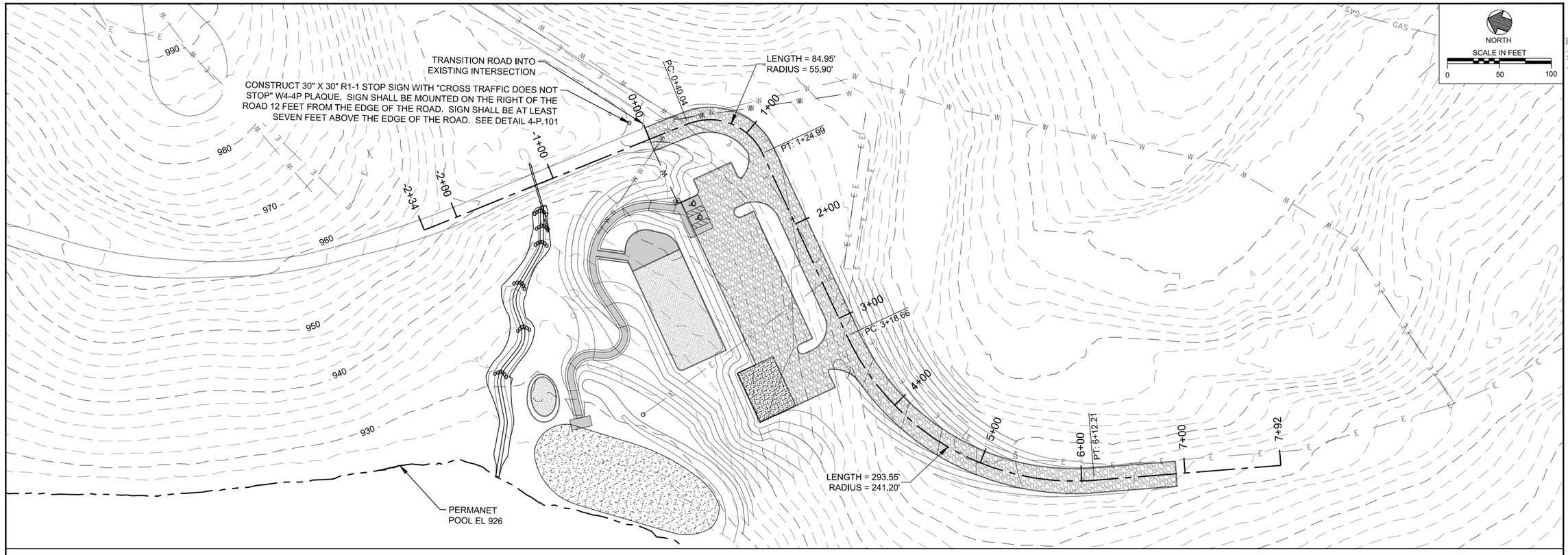
DESIGNED BY:	SEM
DRAWN BY:	RAR
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

TITLE

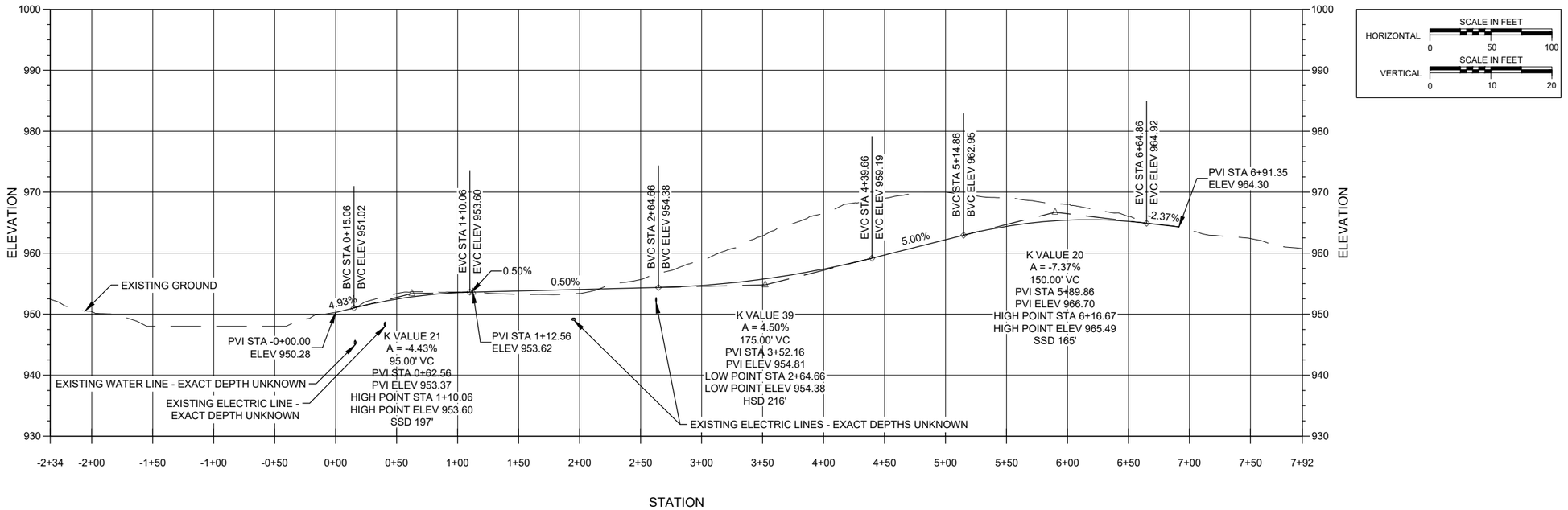
PARKING LOT & PLAYGROUND GRADING PLAN

SHEET

P.3



PLAN VIEW



PROFILE VIEW

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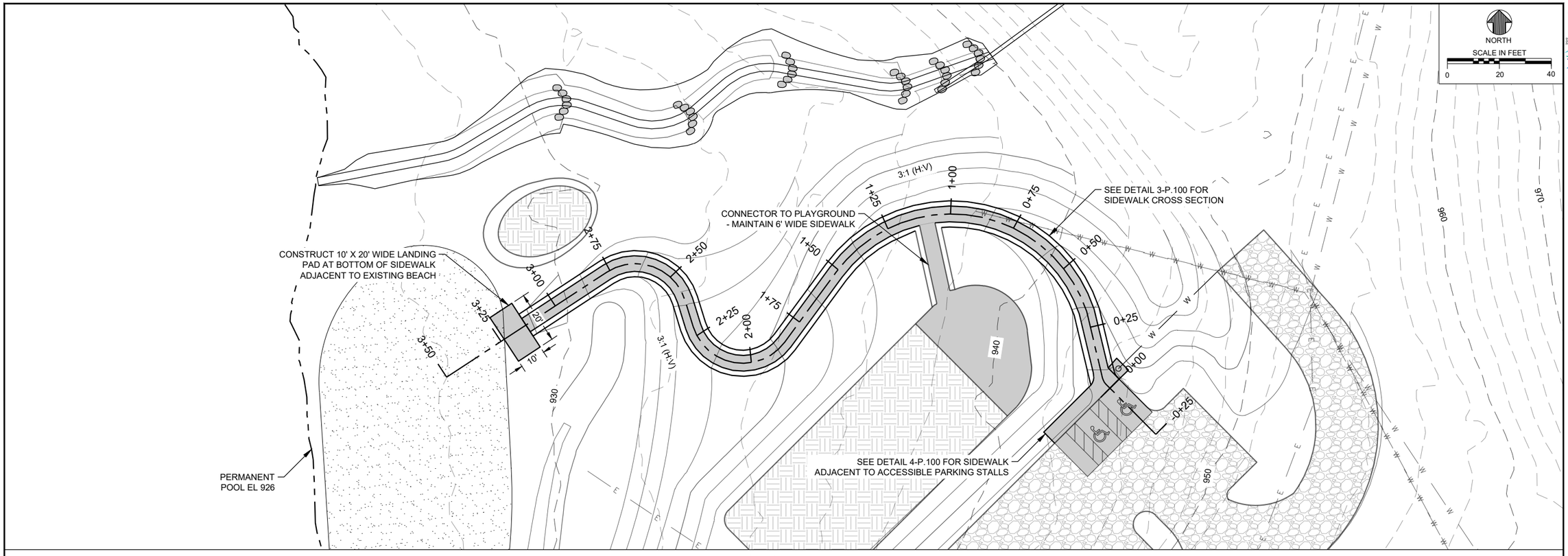
NO.	DATE

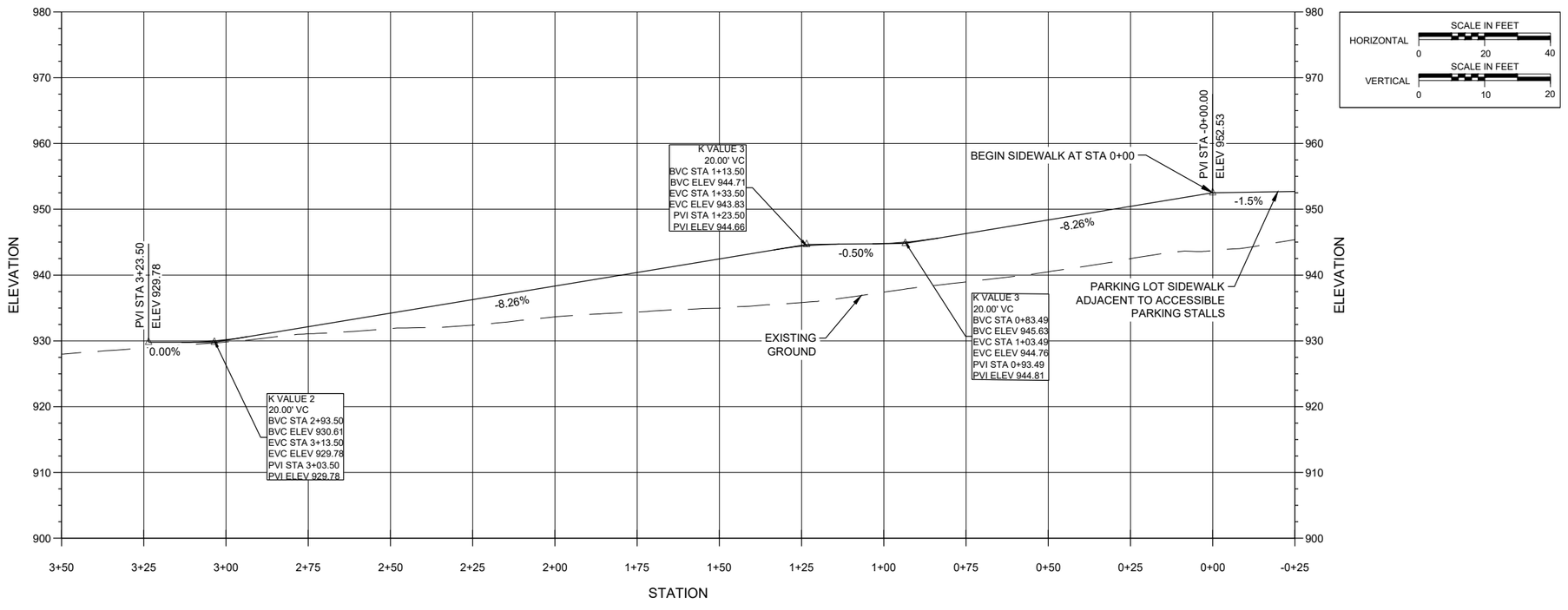
DESIGNED BY: SEM
DRAWN BY: RAR
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
ROADWAY PLAN & PROFILE

SHEET
P.4



PLAN VIEW



PROFILE VIEW

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2021

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REVISIONS

NO.	DATE

DESIGNED BY: SEM
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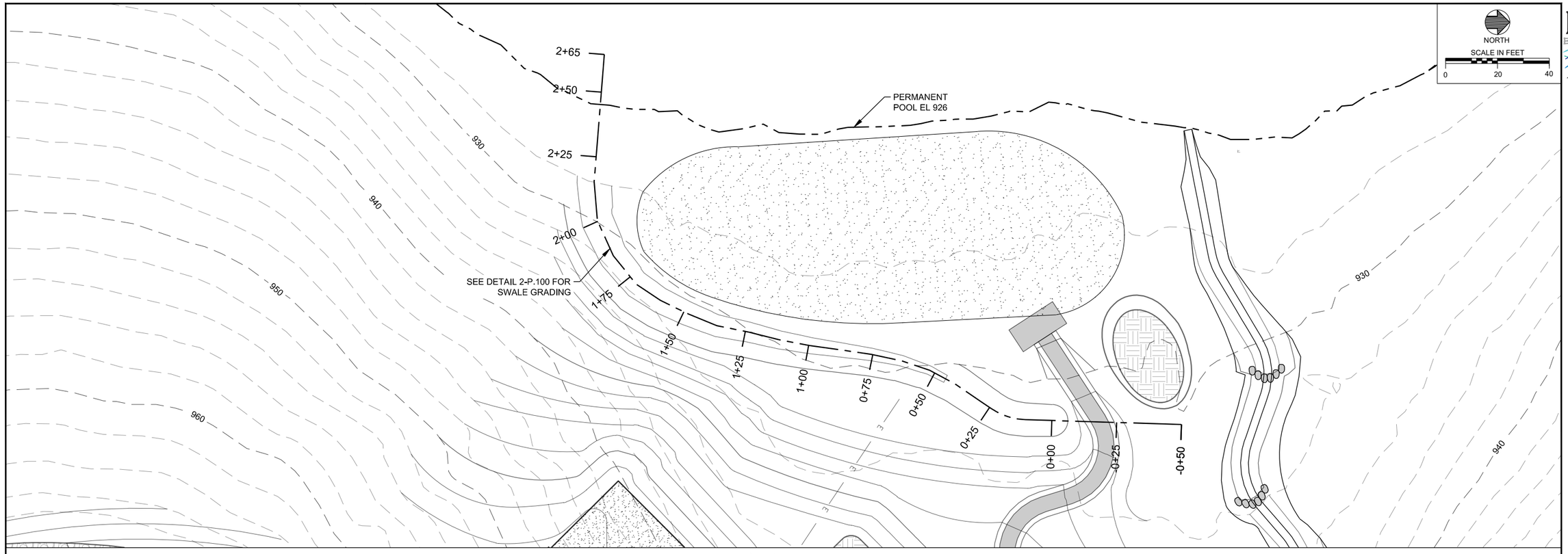
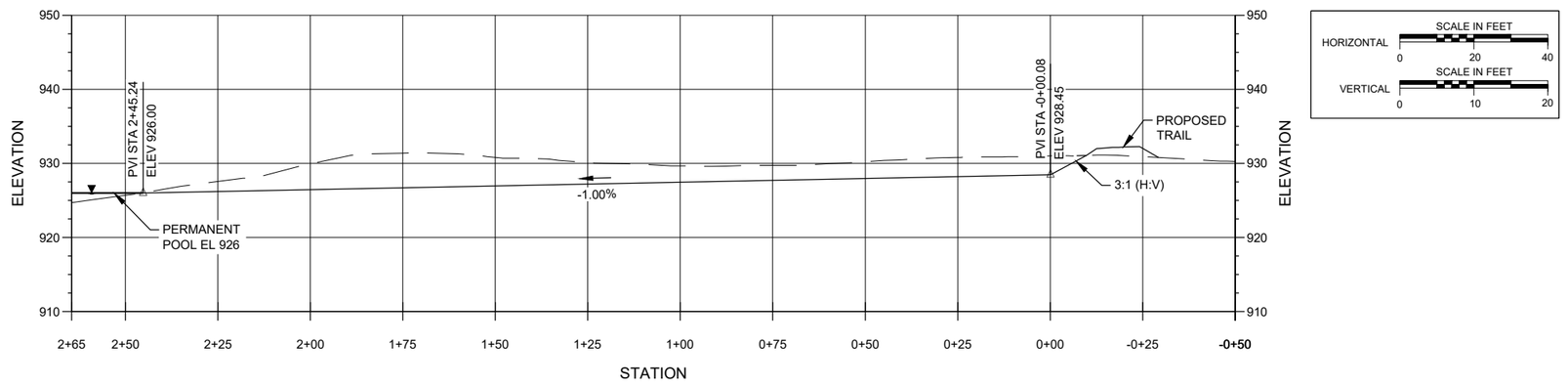
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

TITLE
SIDEWALK PLAN & PROFILE

SHEET
P.5



PLAN VIEW



PROFILE VIEW

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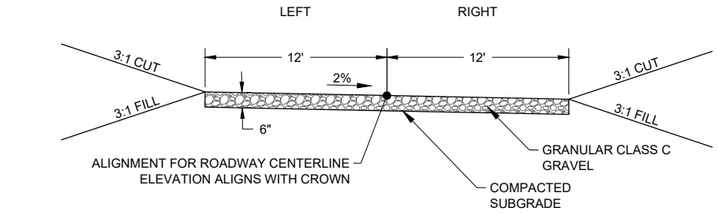
REVISIONS

NO.	DATE

DESIGNED BY: SEM
DRAWN BY: RAR
QA / QC BY: MKS
PROJECT NO.: 145-20-01
DATE: 07.06.2021

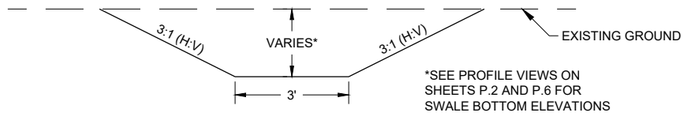
TITLE
BEACH SWALE PLAN & PROFILE

SHEET
P.6



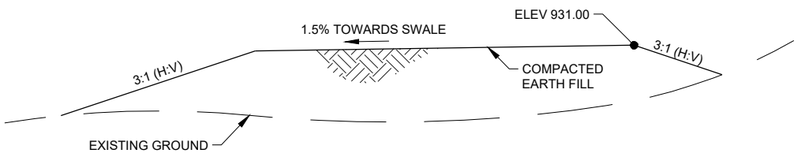
ROADWAY CROSS SECTION 1 P.100

NOT TO SCALE



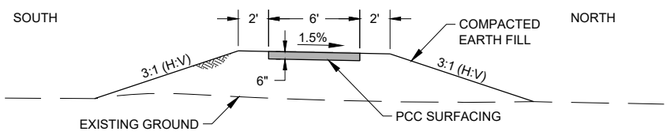
BEACH SWALE EXCAVATION 2 P.100

NOT TO SCALE



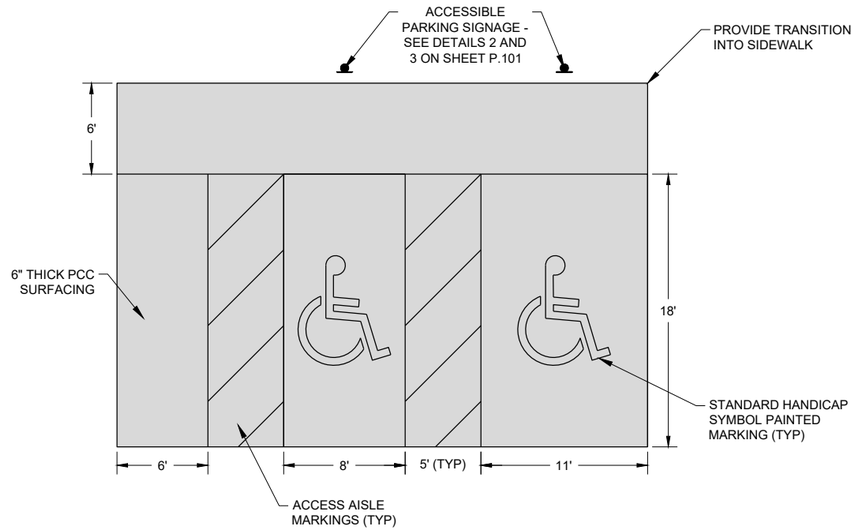
ELEVATED PICNIC AREA 5 P.100

NOT TO SCALE



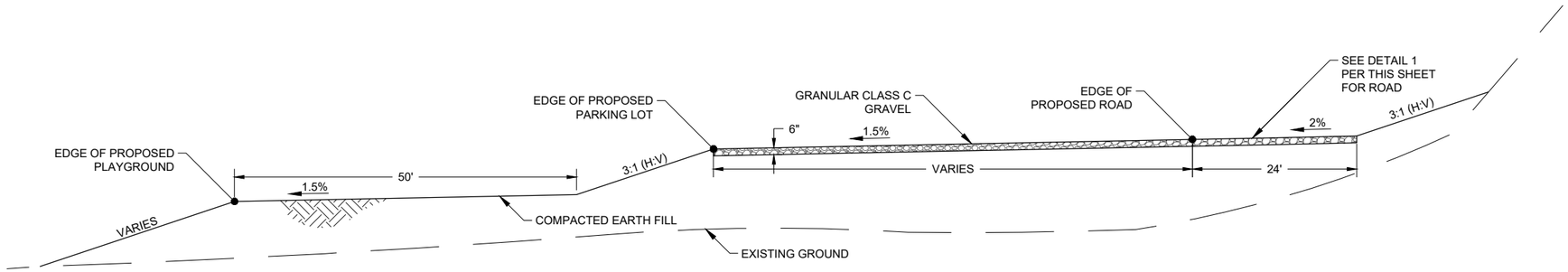
SIDEWALK CROSS SECTION 3 P.100

NOT TO SCALE



ACCESSIBLE PARKING STALLS 4 P.100

NOT TO SCALE



PARK GRADING DETAIL 6 P.100

NOT TO SCALE

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OTTER CREEK LAKE RESTORATION
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

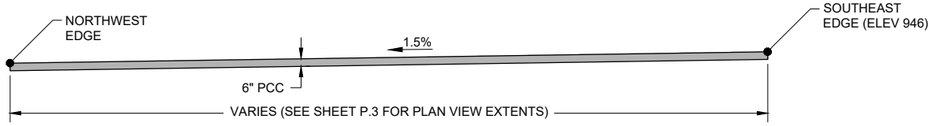
REVISIONS

NO.	DATE

DESIGNED BY: CDI
DRAWN BY: RAR
QA / QC BY: CDI
PROJECT NO.: 145-19-01
DATE: MAY 2021

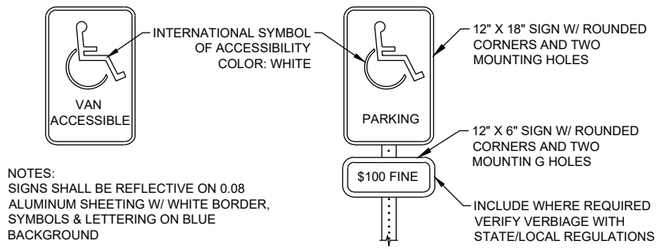
TITLE
PARK DETAILS (1 OF 3)

SHEET
P.100



PLAYGROUND PCC DETAIL 1 P.101

NOT TO SCALE

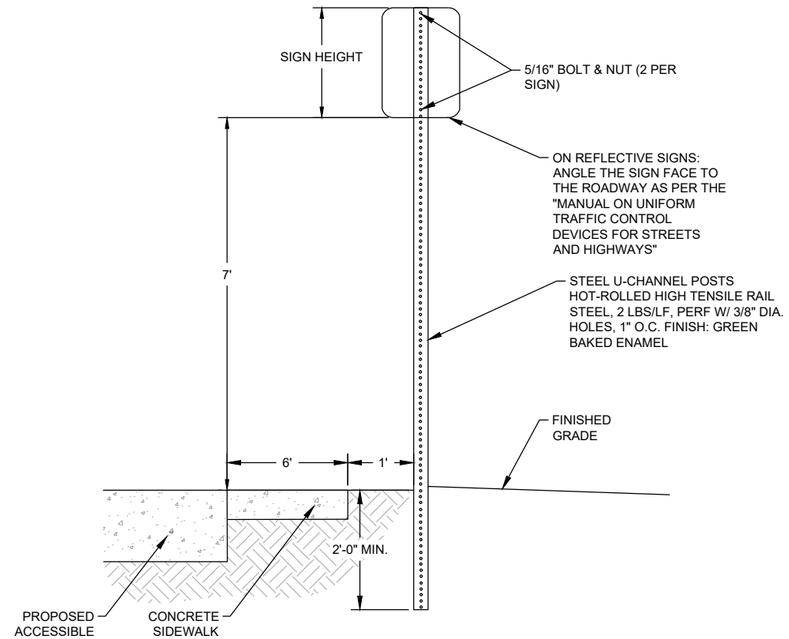


NOTES:
SIGNS SHALL BE REFLECTIVE ON 0.08 ALUMINUM SHEETING W/ WHITE BORDER, SYMBOLS & LETTERING ON BLUE BACKGROUND

SEE SIGN MOUNTING DETAIL 3-P.101

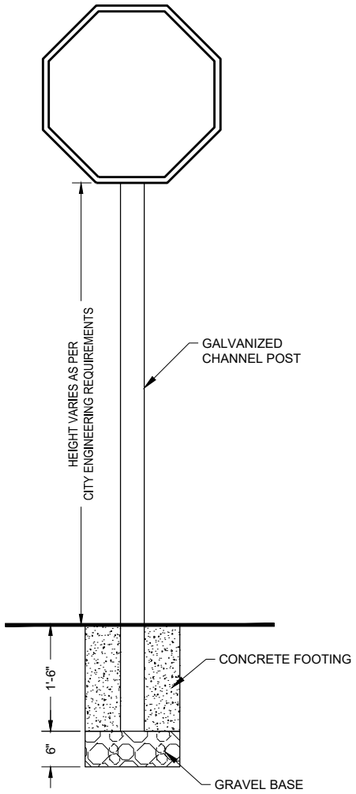
ACCESSIBLE SIGNAGE 2 P.101

NOT TO SCALE



SIGN MOUNTING 3 P.101

NOT TO SCALE



TRAFFIC SIGN 4 P.101

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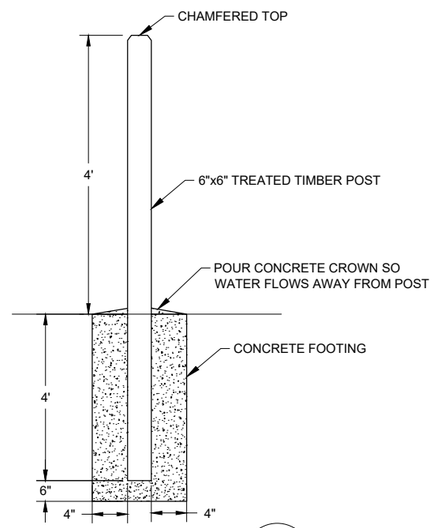

WOOD POST DETAIL 5 P.101

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OTTER CREEK LAKE RESTORATION PHSAE 3
TAMA COUNTY CONSERVATION BOARD
TAMA COUNTY, IOWA
2021

ENGINEER'S SEAL

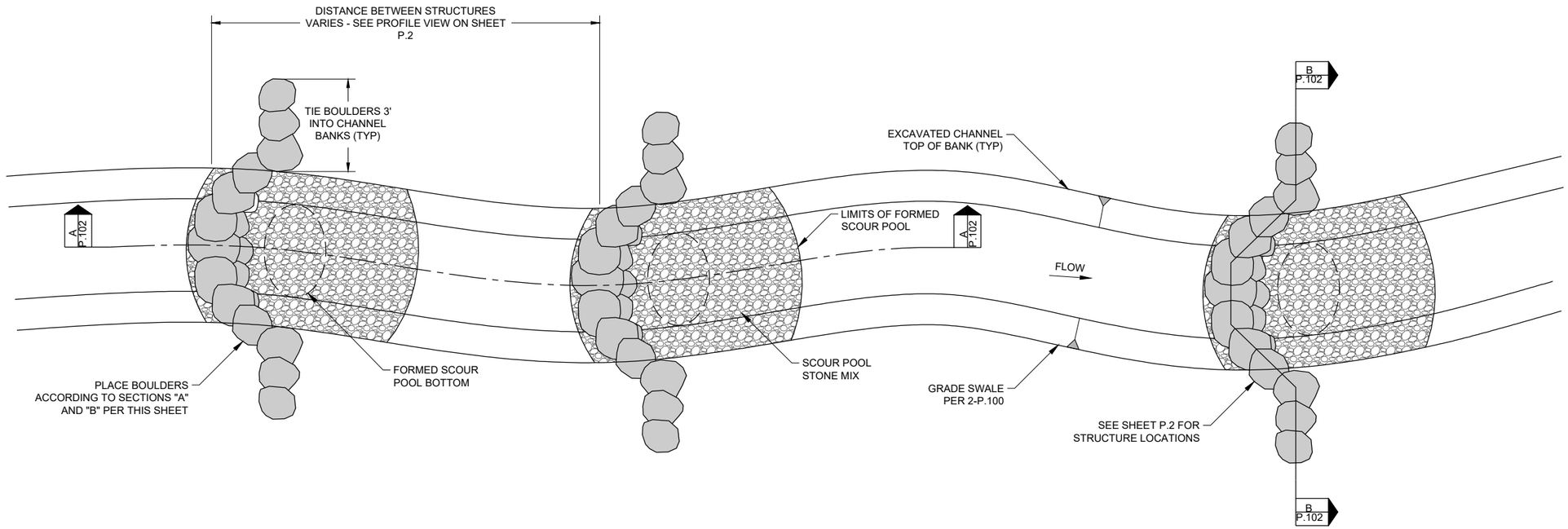
REVISIONS

NO.	DATE

DESIGNED BY:	SEM
DRAWN BY:	RAR
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	07.06.2021

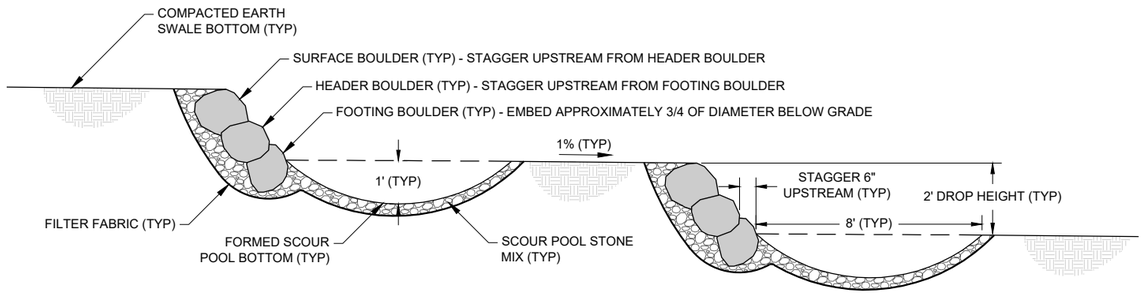
TITLE
PARK DETAILS (2 OF 3)

SHEET
P.101



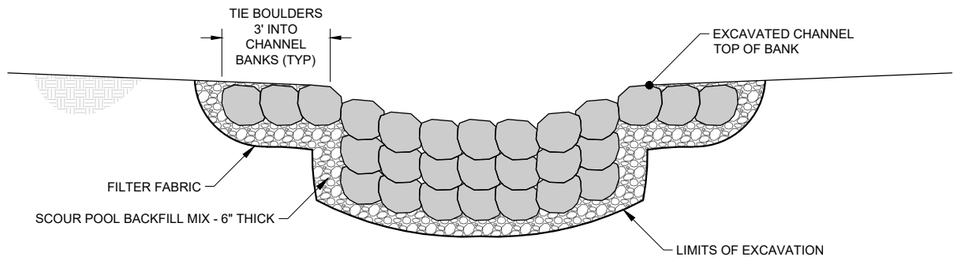
STEP POOL PLAN VIEW DETAIL 1 P.102

NOT TO SCALE



STEP POOL PROFILE SECTION A P.102

NOT TO SCALE



STEP POOL CROSS SECTION B P.102

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OTTER CREEK LAKE RESTORATION
TAMA COUNTY CONSERVATION BOARD
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TITLE
PARK DETAILS (3 OF 3)

SHEET
P.102

STORMWATER POLLUTION PREVENTION PLAN

ALL CONTRACTORS/SUBCONTRACTORS SHALL CONDUCT THEIR OPERATIONS IN A MANNER THAT MINIMIZES EROSION AND PREVENTS SEDIMENTS FROM LEAVING THE PROJECT SITE OR ENTERING NEW OR EXISTING STORM WATER SYSTEMS. THE GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR COMPLIANCE AND IMPLEMENTATION OF THE STORM WATER POLLUTION PREVENTION PLAN (SWPPP) FOR THEIR ENTIRE CONTRACT. THIS RESPONSIBILITY SHALL BE FURTHER SHARED WITH SUBCONTRACTORS WHOSE WORK IS A SOURCE OF POTENTIAL POLLUTION AS DEFINED IN THIS SWPPP.

EROSION CONTROL IS A LUMP SUM PAYMENT AND INCLUDES ALL EROSION CONTROL ITEMS EXCEPT FOR EROSION CONTROL BLANKET, WHICH HAVE A LINE ITEM IN THE BID FORM. CONTRACTOR IS RESPONSIBLE FOR PLACEMENT, CLEAN OUT, AND MAINTENANCE OF ALL SWPPP ITEMS AND REMOVAL ONCE ENGINEER'S APPROVAL IS PROVIDED.

1. SITE DESCRIPTION
THIS SWPPP IS FOR THE CONSTRUCTION OF WATERSHED AND LAKE IMPROVEMENTS AT OTTER CREEK LAKE IN TOWNSHIP T84 N, RANGE R14W, SECTIONS 30 AND 31. THIS PROJECT CONSISTS OF THE REHABILITATION OF THREE WATERSHED PONDS/EARTH IMPOUNDMENTS, LAKE DRAWDOWN, AND INCIDENTAL WORK AS REQUIRED BY THE PLANS AND/OR THE DNR CONSTRUCTION INSPECTOR.

POTENTIAL SOURCES OF POLLUTION:
SITE SOURCES OF POLLUTION GENERATED AS A RESULT OF THIS WORK RELATE TO SILTS AND SEDIMENT WHICH MAY BE TRANSPORTED AS A RESULT OF A STORM EVENT. HOWEVER, THIS SWPPP PROVIDES CONVEYANCE FOR OTHER (NON-PROJECT RELATED) OPERATIONS. THESE OTHER OPERATIONS HAVE STORM WATER RUNOFF, THE REGULATION OF WHICH IS BEYOND THE CONTROL OF THIS SWPPP. POTENTIALLY THIS RUNOFF CAN CONTAIN VARIOUS POLLUTANTS RELATED TO SITE-SPECIFIC LAND USES. EXAMPLES ARE:

RURAL AGRICULTURAL ACTIVITIES:
RUNOFF FROM AGRICULTURAL LAND USE CAN POTENTIALLY CONTAIN CHEMICALS INCLUDING HERBICIDES, PESTICIDES, FUNGICIDES AND FERTILIZERS.

2. CONTROLS
AT DOWNGRADIENT LOCATIONS WHERE RUNOFF CAN MOVE FROM EACH CONSTRUCTION SITE, CONTROLS SHALL BE PLACED ALONG THE PERIMETER OF THE AREAS TO BE DISTURBED PRIOR TO BEGINNING GRADING, EXCAVATION OR CLEARING AND GRUBBING OPERATIONS. CONTROLS INCLUDE SILT FENCE, FILTER SOCK (OR APPROVED EQUIVALENTS BY FIELD ENGINEER) AS LAID OUT ON THE SITE PLAN SHEETS. VEGETATION IN AREAS NOT NEEDED FOR CONSTRUCTION SHALL BE PRESERVED.

CONSTRUCTION ENTRANCES TO BE PLACED AT ALL LOCATIONS WHERE EQUIPMENT ENTERS AND EXITS EACH PROJECT SITE FROM PARK ROADS IN ORDER TO REDUCE SEDIMENT TRACK OUT. ANY SEDIMENT TRACK OUT THAT DOES OCCUR MUST BE REMOVED AND SPOILED ON SITE.

TEMPORARY STABILIZING SEEDING SHALL BE COMPLETED AS THE DISTURBED AREAS ARE CONSTRUCTED. IF CONSTRUCTION ACTIVITY IS NOT PLANNED TO OCCUR IN A DISTURBED AREA FOR AT LEAST 21 DAYS, THE AREA SHALL BE STABILIZED BY TEMPORARY SEEDING OR MULCHING WITHIN 14 DAYS. OTHER STABILIZING METHODS SHALL BE USED OUTSIDE THE SEEDING TIME PERIOD. TEMPORARY SEEDING AND MULCHING SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT. UPON REACHING FINAL GRADES, EROSION CONTROL MATTING WILL BE PLACE ON SLOPES AS INDICATED ON PLANS.

AS THE WORK PROGRESSES, ADDITIONAL EROSION CONTROL ITEMS MAY BE REQUIRED AS DETERMINED BY THE CONTRACTOR AFTER FIELD INVESTIGATION. THE CONTRACTOR WILL COMPLETE THE CONSTRUCTION WITH THE ESTABLISHMENT OF PERMANENT PERENNIAL VEGETATION OF ALL DISTURBED AREAS AND EROSION CONTROL MATTING IN SPECIFIED LOCATIONS.

OTHER CONTROLS:
CONTRACTOR DISPOSAL OF UNUSED CONSTRUCTION MATERIALS AND CONSTRUCTION MATERIAL WASTES SHALL COMPLY WITH APPLICABLE STATE AND LOCAL WASTE DISPOSAL, SANITARY SEWER, OR SEPTIC SYSTEM REGULATIONS. IN THE EVENT OF A CONFLICT WITH OTHER GOVERNMENTAL LAWS, RULES AND REGULATIONS, THE MORE RESTRICTIVE LAWS, RULES OR REGULATIONS SHALL APPLY.

APPROVED STATE OR LOCAL PLANS:
DURING THE COURSE OF THIS CONSTRUCTION, IT IS POSSIBLE THAT SITUATIONS WILL ARISE WHERE UNKNOWN MATERIALS WILL BE ENCOUNTERED. WHEN SUCH SITUATIONS ARE ENCOUNTERED, THEY WILL BE HANDLED ACCORDING TO ALL FEDERAL, STATE, AND LOCAL REGULATIONS IN EFFECT AT THE TIME.

3. MAINTENANCE
THE CONTRACTOR IS REQUIRED TO MAINTAIN ALL TEMPORARY EROSION CONTROL MEASURES IN PROPER WORKING ORDER, INCLUDING CLEANING, REPAIRING, OR REPLACING THEM THROUGHOUT THE CONTRACT PERIOD. CLEANING OF SILT CONTROL DEVICES SHALL BEGIN WHEN THE FEATURES HAVE LOST 50% OF THEIR CAPACITY.

4. INSPECTIONS
INSPECTIONS SHALL BE MADE JOINTLY BY THE CONTRACTOR AND THE CONTRACTING AUTHORITY EVERY SEVEN CALENDAR DAYS AND AFTER EACH RAIN EVENT THAT IS 1/2" OR GREATER. THE CONTRACTOR SHALL IMMEDIATELY BEGIN CORRECTIVE ACTION ON ALL DEFICIENCIES FOUND. THE FINDINGS OF THIS INSPECTION SHALL BE RECORDED IN THE PROJECT DIARY. THIS SWPPP MAY BE REVISED BASED ON THE FINDINGS OF THE INSPECTION. THE CONTRACTOR SHALL IMPLEMENT ALL REVISIONS. ALL CORRECTIVE ACTIONS SHALL BE COMPLETED WITHIN 3 CALENDAR DAYS OF THE INSPECTION.

5. NON-STORM DISCHARGES
THIS INCLUDES SUBSURFACE DRAINS (I.E. LONGITUDINAL AND STANDARD SUBDRAINS), SLOPE DRAINS AND BRIDGE END DRAINS. THE VELOCITY OF THE DISCHARGE FROM THESE FEATURES MAY BE CONTROLLED BY THE USE OF ROLLED EROSION CONTROL, OR RIPRAP.

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2021

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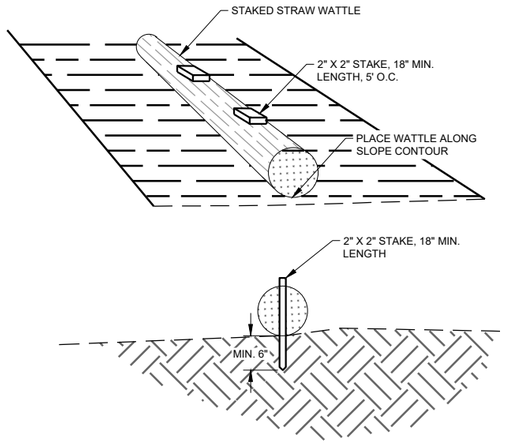
NO.	DATE

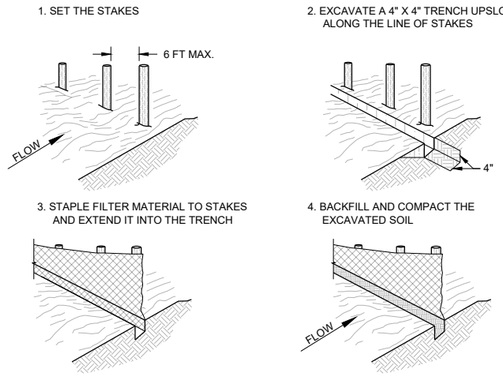
DESIGNED BY:	SEM
DRAWN BY:	TWS
QA / QC BY:	MKS
PROJECT NO.:	145-20-01
DATE:	MAY 2021

TITLE
SWPPP

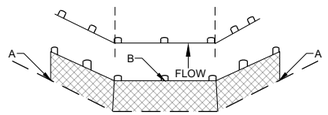
SHEET
S.1



STRAW WATTLE DETAIL
NOT TO SCALE
1
S.100



SHEET FLOW INSTALLATION
(PERSPECTIVE VIEW)

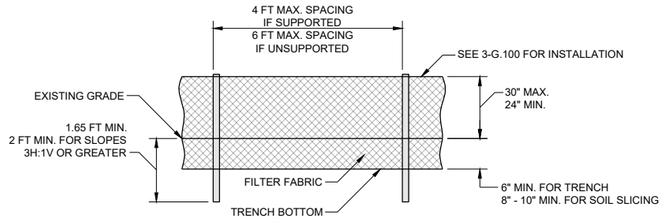


POINTS A SHOULD BE HIGHER THAN POINT B

DRAINAGEWAY INSTALLATION
(ELEVATION)

SILT FENCE INSTALLATION
NOT TO SCALE
2
S.100

NOTE:
STEEL FENCE POSTS SHOULD BE USED AS STAKES FOR ALL INSTALLATIONS



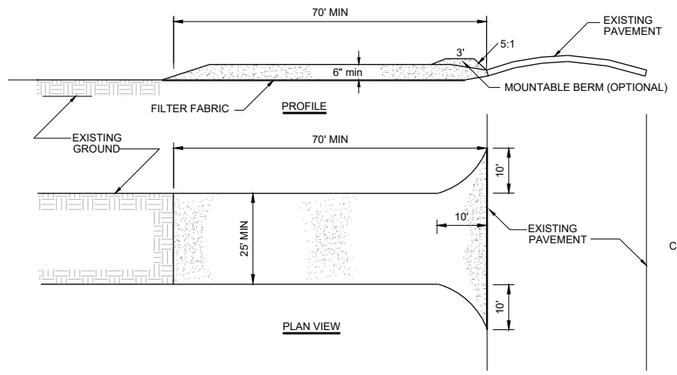
ELEVATION

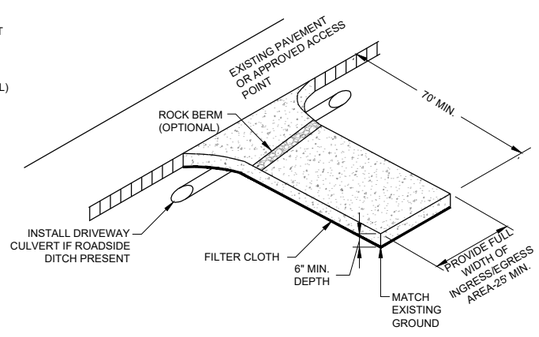
SILT FENCE FABRIC SPECIFICATIONS

PROPERTY	TEST PROCEDURE	MIN. FABRIC VALUE
GRAB TENSILE STRENGTH	ASTM D-4632	100 LBS.
GRAB ELONGATION@ FAILURE	ASTM D-4632	15%
TRAPEZOID TEAR	ASTM D-4533	70 LBS.
MULLEN BURST STRENGTH	ASTM D-3786	250 PSI.
PUNCTURE STRENGTH	ASTM D-4833	50 LBS.
PERMITTIVITY	ASTM D-4491	0.07 SEC-1 MIN.
PERMEABILITY	ASTM D-4491	.005 CM/SEC
APPARENT OPENING SIZE	ASTM D-4751	0.90 MM
UV RESISTANCE(500 HRS)	ASTM D-4355	90%

INSTALL PARALLEL ALONG CONTOURS AS FOLLOWS		
% SLOPE	SLOPE	MAX. SPACING ON SLOPE
10% FLATTER	10:1 OR FLATTER	300 ft.
10>%<15	10:1>x<7.5:1	150 ft.
15>%<20	7.5:1>x<5:1	100 ft.
20>%<30	5:1>x<3.5:1	50 ft.
30>%<50	3.5:1>x<2:1	25 ft.

SILT FENCE BARRIER
NOT TO SCALE
3
S.100





PERSPECTIVE VIEW

STABILIZED CONSTRUCTION ENTRANCE
NOT TO SCALE
4
S.100

FILTER FABRIC SPECIFICATIONS

PROPERTY	TEST PROCEDURE	LIGHT DUTY ENTRANCE MIN. FABRIC VALUE	HEAVY DUTY ENTRANCE MIN. FABRIC VALUE
GRAB TENSILE STRENGTH	ASTM D-4632	180 LBS.	250 LBS.
GRAB ELONGATION@ FAILURE	ASTM D-4632	50%	60%
MULLEN BURST STRENGTH	ASTM D-3786	250 PSI.	380 PSI.
PUNCTURE STRENGTH	ASTM D-4833	90 LBS.	125 LBS.
APPARENT OPENING SIZE	ASTM D-4751	0.2 MM	0.2 MM
AGGREGATE DEPTH		6 IN.	10 IN.

LIGHT DUTY ENTRANCE SHALL BE DEFINED AS SITES THAT HAVE BEEN GRADED TO SUBGRADE AND WHERE MOST TRAVEL WOULD BE SINGLE AXLE VEHICLES AND AN OCCASIONAL MULTI-AXLE TRUCK.
HEAVY DUTY ENTRANCE SHALL BE DEFINED AS SITES WITH ONLY ROUGH GRADING AND WHERE MOST TRAVEL WOULD BE MULTIAXLE VEHICLES.

CONSTRUCTION SPECIFICATIONS

1. STONE SIZE - USE 2" STONE, OR RECLAIMED OR RECYCLED CONCRETE EQUIVALENT
2. LENGTH - AS REQUIRED, BUT NOT LESS THAN 70 FEET (EXCEPT ON A SINGLE RESIDENCE LOT WHERE A 30 FOOT MINIMUM LENGTH WOULD APPLY).
3. THICKNESS - NOT LESS THAN SIX (6) INCHES.
4. WIDTH - TWENTY FIVE (25) FOOT MINIMUM, BUT NOT LESS THAN THE FULL WIDTH AT POINTS WHERE INGRESS OR EGRESS OCCURS.
5. FILTER FABRIC - WILL BE PLACED OVER THE ENTIRE AREA PRIOR TO PLACING OF STONE. FILTER WILL NOT BE REQUIRED ON A SINGLE FAMILY RESIDENCE LOT.
6. SURFACE WATER - ALL SURFACE WATER FLOWING OR DIVERTED TOWARD CONSTRUCTION ENTRANCES SHALL BE PIPED ACROSS THE ENTRANCE. IF PIPING IS IMPRACTICAL, A MOUNTABLE BERM WITH 5H:1V SLOPES WILL BE PERMITTED.
7. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT. ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHTS-OF-WAY MUST BE REMOVED IMMEDIATELY.
8. WASHING - WHEELS SHALL BE CLEANED TO REMOVE SEDIMENT PRIOR TO ENTRANCE ONTO PUBLIC RIGHTS-OF-WAY. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH STONE AND WHICH DRAINS INTO AN APPROVED SEDIMENT TRAPPING DEVICE.
9. PERIODIC INSPECTION AND NEEDED MAINTENANCE SHALL BE PROVIDED AFTER EACH RAIN.

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PROJECT NO.: 145-20-01
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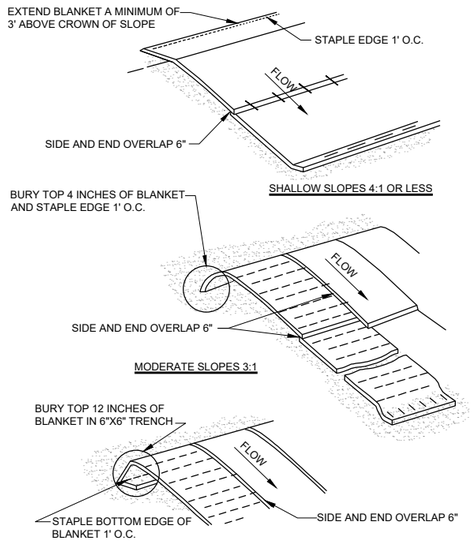
TITLE
SWPP DETAILS (1 OF 2)

SHEET
S.100

MATTING NOTES:

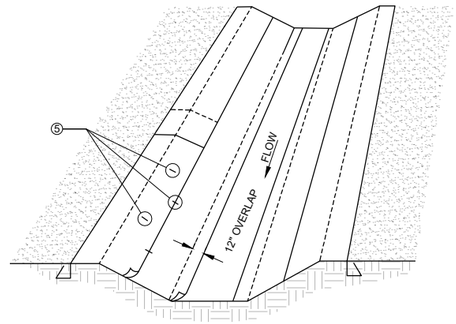
1. SURFACE MUST BE GRADED SMOOTH TO REMOVE ALL DEBRIS AND UNDULATIONS LARGER THAN 1 1/2" IN ANY DIRECTION.
2. APPLY SEED AND FERTILIZER PRIOR TO MATTING. INSTALL SO THAT MATTING IS IN COMPLETE CONTACT WITH SOIL SURFACE.
3. STAPLES ARE TO BE INSTALLED PER MANUFACTURES SPECIFICATIONS.
4. CHANNEL OR SWALE APPLICATIONS: LENGTHWISE OVERLAP MATTING A MINIMUM OF 12"; CROSSWISE OVERLAP A MINIMUM OF 6", AND AVOID JOINING MATERIAL IN CENTER OF DITCH OR SWALE.
5. SLOPE APPLICATION: LENGTHWISE OVERLAP MATTING A MINIMUM OF 6"; CROSSWISE OVERLAP A MINIMUM OF 6"; AT TOP OF SLOPE, ENTRENCH MATERIAL IN A 6"x6" TRENCH AND STAPLE AT 12" INTERVAL; AT BOTTOM OF SLOPE, EXTEND MAT 2 FEET BEYOND THE TOE OF THE SLOPE, TURN MATERIAL UNDER 4" AND STAPLE AT 12" INTERVAL; ON 4:1 SLOPES, ROLLS MAY BE PLACED IN HORIZONTAL STRIPS; MATS MUST BE STAPLED IN PLACE AS THEY ARE INSTALLED DOWN THE SLOPE FACE EVERY 4' UNTIL THE BOTTOM.
6. INSPECT ONCE PER WEEK ON ACTIVE SITES, ONCE EVERY TWO WEEKS ON INACTIVE SITES, AND WITHIN 24 HOURS FOLLOWING A 0.5 INCH RAIN EVENT.
7. REPAIR ANY DAMAGED AREAS OF THE NET OR BLANKET AND STAPLE INTO THE GROUND ANY AREAS NOT IN CLOSE CONTACT WITH THE GROUND SURFACE.
8. IF EROSION OCCURS, REPAIR AND PROTECT THE ERODED AREA.



NOTES:

1. ON 4:1 OR LESS SLOPES BLANKETS MAY BE APPLIED ACROSS THE SLOPE.
2. ALL BLANKET INSTALLED AND STAPLED PER MANUFACTURERS SPECIFICATIONS.

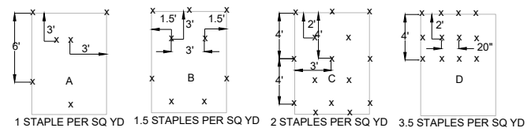
EROSION CONTROL MATTING — 1 / S.101
NO SCALE

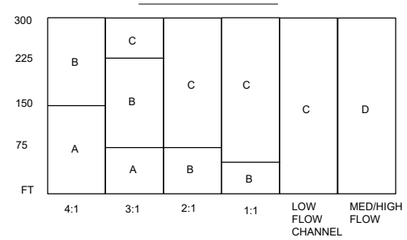


EROSION CONTROL MATTING CHANNEL INSTALLATION — 2 / S.101
NO SCALE

NOTES:

1. INFORMATION PROVIDED IS MINIMUM REQUIREMENTS. MANUFACTURERS REQUIREMENTS WHICH ARE MORE STRINGENT SHALL BE USED.
2. INSTALL MAT PARALLEL IN CENTER OF CHANNEL IN THE DIRECTION OF FLOW. FOR CULVERT OUTFALLS, PLACE MAT UNDER CULVERT OR RIP RAP A MIN. OF 12".
3. IN CHANNEL BOTTOM, OVERLAP LENGTH ENDS A MINIMUM OF 12 INCHES.
4. STAPLE PER MANUFACTURERS SPECIFICATIONS.
5. LENGTH OF STAPLES SHALL BE DETERMINED BY SOIL TYPE- COHESIVE SOIL USE 6 INCH, NON-COHESIVE SOILS 8-12 INCH.





*MINIMUM STAPLE PATTERN GUIDE AND RECOMMENDATION FOR SLOPE AND CHANNEL APPLICATION

MATTING STAPLE PATTERN — 3 / S.101
NO SCALE

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