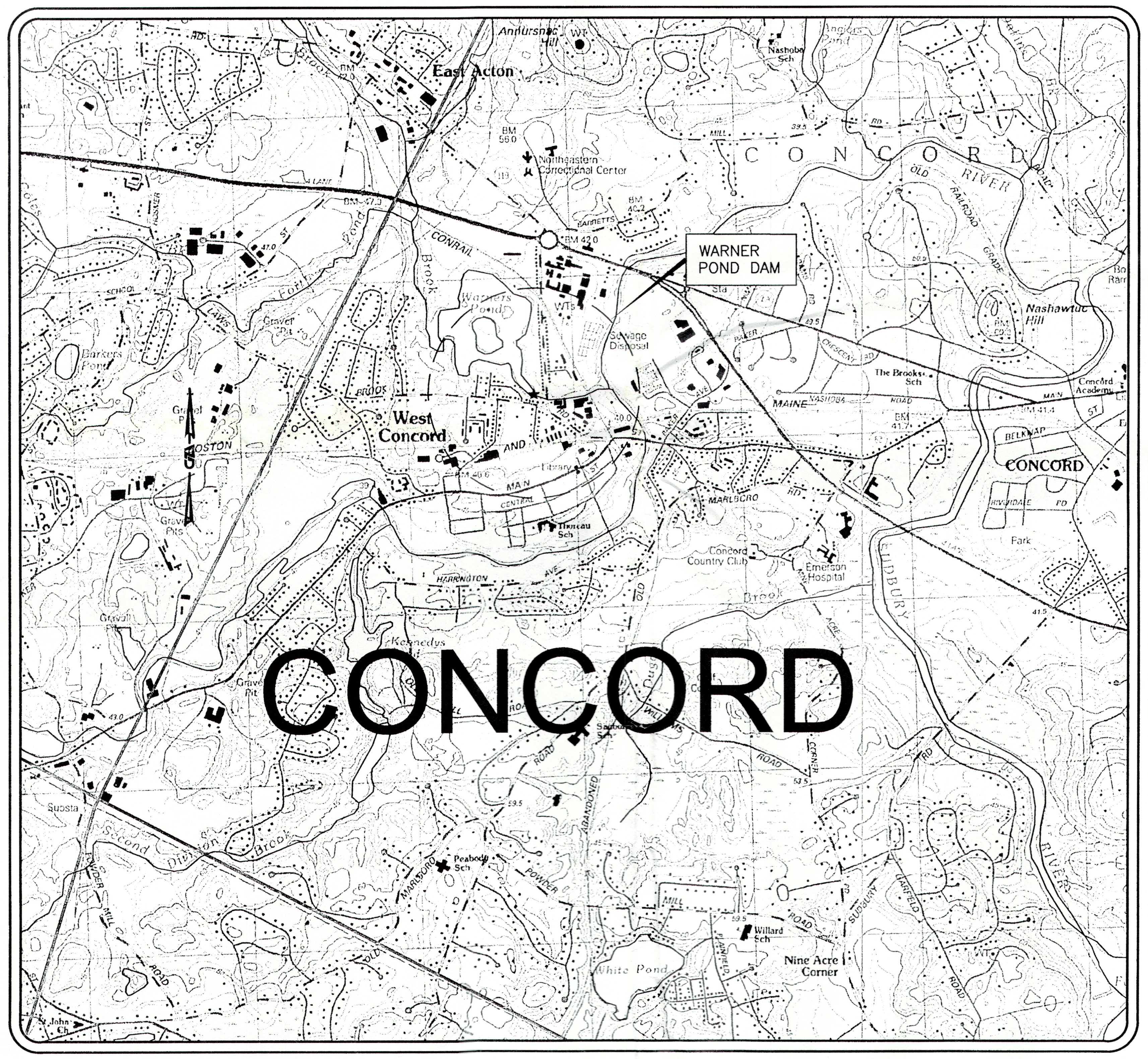
TOWN OF CONCORD
COMMONWEALTH OF MASSACHUSETTS

WARNER'S POND DAM REHABILITATION – SPILLWAY AND EMBANKMENT IMPROVEMENTS



REGIONAL LOCUS PLAN

GRAPHIC SCALE: 1"=2000'±
0 1000' 2000' 4000'

INDEX OF DRAWINGS

No.	TITLE
C1	COVER SHEET / INDEX TO DRAWINGS / REGIONAL LOCUS PLAN / LEGEND
C2	EXISTING CONDITIONS
C3	PROPOSED IMPROVEMENTS
C4	DAM LAYOUT PLAN AND PIPING DETAILS
C5	EMBANKMENT SECTIONS AND DETAILS
S1	TRAINING WALL PROFILES, SECTIONS AND DETAILS

EXISTING LEGEND

▤	EXISTING CATCH BASIN (SQUARE)
Ⓓ	EXISTING DRAIN MANHOLE (DMH)
Ⓔ	EXISTING ELECTRICAL MANHOLE
◎	EXISTING IRON PIN
Ⓢ	EXISTING SEWER MANHOLE (SMH)
⇒	EXISTING DRAINAGE FLOW
TP1 ⊞	EXISTING TEST PIT
✳	EXISTING CONIFEROUS TREE
✿	EXISTING DECIDUOUS TREE
○	EXISTING UTILITY POLE
114.51 TS	EXISTING TOP OF SEDIMENT
× 114.01 BS	EXISTING BOTTOM OF SEDIMENT
	EXISTING BANK FLAG AND NUMBER
	EXISTING WETLAND FLAG AND NUMBER
— —100— —	EXISTING MAJOR CONTOUR
– – – 98 – – –	EXISTING MINOR CONTOUR
— · · — · · —	EXISTING EDGE OF WATER
— — · —	EXISTING WETLAND BOUNDARY
— — · —	EXISTING RIPARIAN ZONE
— – – —	EXISTING PROPERTY LINE
— – – —	EXISTING RIGHT–OF–WAY
—— S ——	EXISTING SANITARY SEWER
—— SD ——	EXISTING STORM DRAIN
—○—○—○—	EXISTING CHAINLINK FENCE
—□—□—□—	EXISTING WOODEN FENCE
○○○○○○○○	EXISTING STONE WALL
⌒⌒⌒⌒⌒	EXISTING TREE/SHRUB LINE

PROPOSED LEGEND

——100——	PROPOSED MAJOR CONTOUR
—— 98 ——	PROPOSED MINOR CONTOUR
— — — — —	PROPOSED ACCESS ROAD
▭	PROPOSED HAYBALES
- - - - - - -	PROPOSED GEOTEXTILE FABRIC
Ⓓ	PROPOSED DRAIN MANHOLE (DMH)
☐	PROPOSED LOAM AND SEED WITH TURF REINFORCEMENT MAT (TRM)
▒	PROPOSED RIPRAP
▨	PROPOSED RECLAIMED ASPHALT

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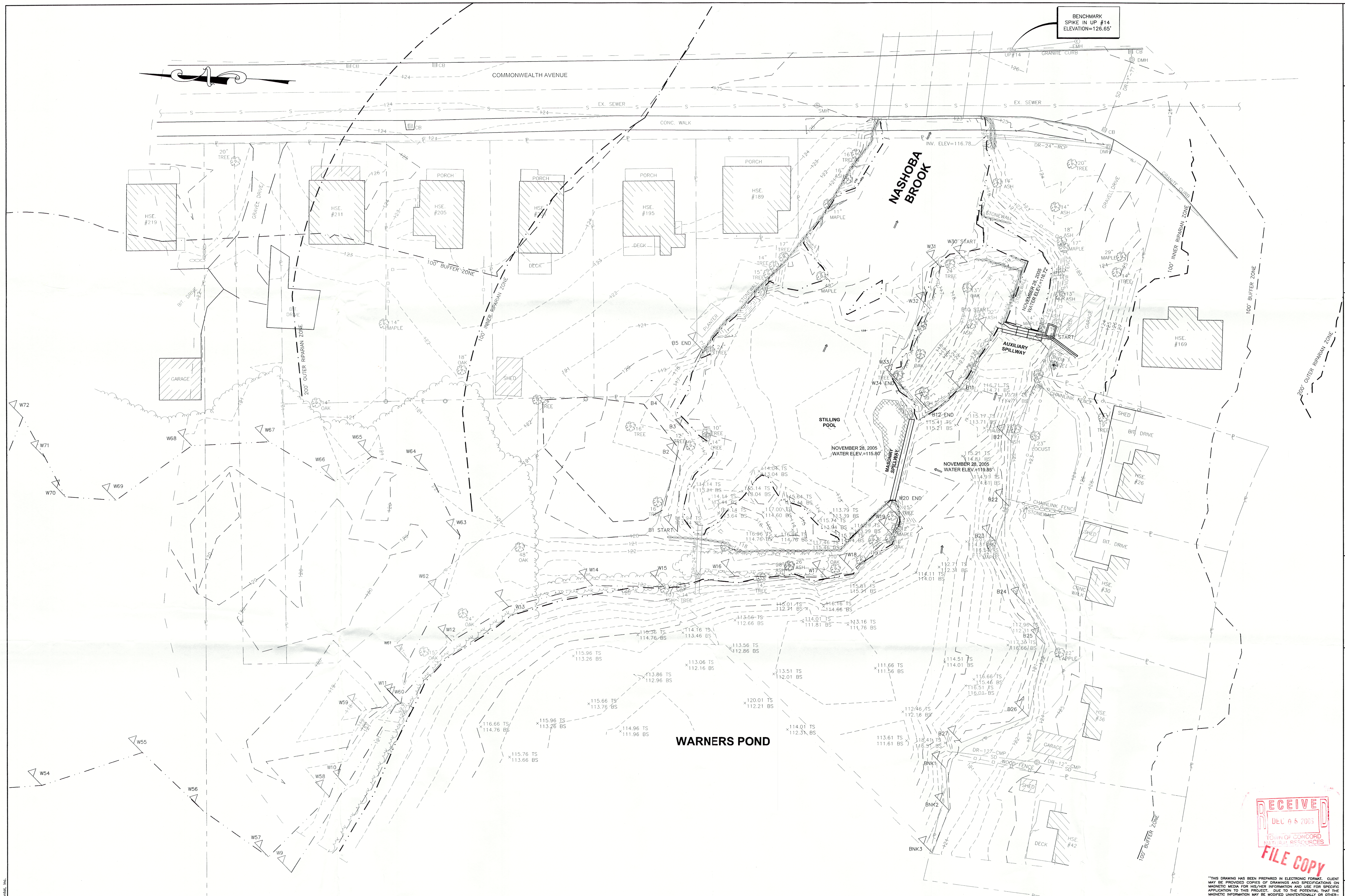

SCALE: 1" = 20'

0 10 20 40

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PROJ MGR: C. HAKER
DESIGNED BY: C. HAKER
REVIEWED BY: V.A.O./P.B.
OPERATOR: L.M. BRIDE
DATE: JUNE 2006

WARNER'S POND DAM REHABILITATION

TOWN OF CONCORD, MA

EXISTING CONDITIONS

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NOTES:

1. DATUM NAVD 1988 (ADD 0.83' TO CONVERT ELEVATIONS TO NGVD 1929)
2. PROPERTY LINE INFORMATION COMPUTED FROM ASSESSORS PLANS

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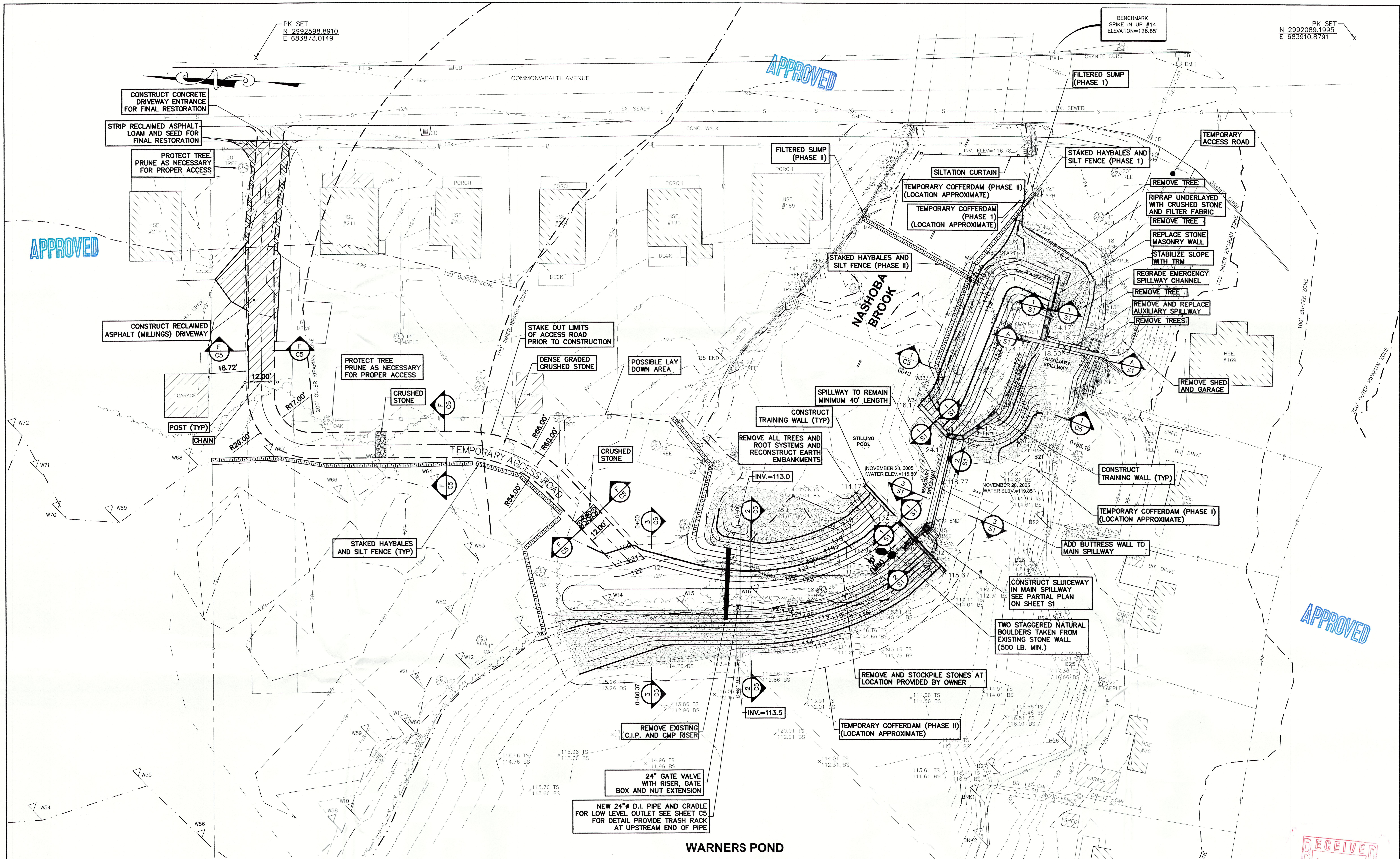
PK SET
N 2992598.8910
E 683873.0149
BENCHMARK
SPIKE IN UP #14
ELEVATION=126.65'
PK SET
N 2992089.1995
E 683910.8791
COMMONWEALTH AVENUE
EX. SEWER
CONC. WALK
GRANITE CURB
CONSTRUCT CONCRETE DRIVEWAY ENTRANCE FOR FINAL RESTORATION
STRIP RECLAIMED ASPHALT LOAM AND SEED FOR FINAL RESTORATION
PROTECT TREE. PRUNE AS NECESSARY FOR PROPER ACCESS
CONSTRUCT RECLAIMED ASPHALT (MILLINGS) DRIVEWAY
POST (TYP)
CHAIN
18.72'
12.00'
R17.00'
R29.00'
R66.00'
R60.00'
R54.00'
12.00'
TEMPORARY ACCESS ROAD
100' BUFFER ZONE
100' INNER RIPARIAN ZONE
200' OUTER RIPARIAN ZONE
PROTECT TREE PRUNE AS NECESSARY FOR PROPER ACCESS
CRUSHED STONE
STAKE OUT LIMITS OF ACCESS ROAD PRIOR TO CONSTRUCTION
DENSE GRADED CRUSHED STONE
POSSIBLE LAY DOWN AREA
CRUSHED STONE
STAKED HAYBALES AND SILT FENCE (TYP)
FILTERED SUMP (PHASE II)
FILTERED SUMP (PHASE 1)
SILTATION CURTAIN
TEMPORARY COFFERDAM (PHASE II) (LOCATION APPROXIMATE)
TEMPORARY COFFERDAM (PHASE 1) (LOCATION APPROXIMATE)
STAKED HAYBALES AND SILT FENCE (PHASE II)
STAKED HAYBALES AND SILT FENCE (PHASE 1)
TEMPORARY ACCESS ROAD
REMOVE TREE
RIPRAP UNDERLAYED WITH CRUSHED STONE AND FILTER FABRIC
REMOVE TREE
REPLACE STONE MASONRY WALL
STABILIZE SLOPE WITH TRM
REGRADE EMERGENCY SPILLWAY CHANNEL
REMOVE TREE
REMOVE AND REPLACE AUXILIARY SPILLWAY
REMOVE TREES
REMOVE SHED AND GARAGE
NASHOBA BROOK
AUXILIARY SPILLWAY
SPILLWAY TO REMAIN MINIMUM 40' LENGTH
CONSTRUCT TRAINING WALL (TYP)
REMOVE ALL TREES AND ROOT SYSTEMS AND RECONSTRUCT EARTH EMBANKMENTS
STILLING POOL
INV.=113.0
NOVEMBER 28, 2005 WATER ELEV.=115.80'
NOVEMBER 28, 2005 WATER ELEV.=119.85'
MASONRY SPILLWAY
CONSTRUCT TRAINING WALL (TYP)
TEMPORARY COFFERDAM (PHASE I) (LOCATION APPROXIMATE)
ADD BUTTRESS WALL TO MAIN SPILLWAY
CONSTRUCT SLUICEWAY IN MAIN SPILLWAY SEE PARTIAL PLAN ON SHEET S1
TWO STAGGERED NATURAL BOULDERS TAKEN FROM EXISTING STONE WALL (500 LB. MIN.)
REMOVE AND STOCKPILE STONES AT LOCATION PROVIDED BY OWNER
TEMPORARY COFFERDAM (PHASE II) (LOCATION APPROXIMATE)
INV.=113.5
REMOVE EXISTING C.I.P. AND CMP RISER
24" GATE VALVE WITH RISER, GATE BOX AND NUT EXTENSION
NEW 24"ø D.I. PIPE AND CRADLE FOR LOW LEVEL OUTLET SEE SHEET C5 FOR DETAIL PROVIDE TRASH RACK AT UPSTREAM END OF PIPE
WARNERS POND
HSE. #219
HSE. #211
HSE. #205
HSE. #195
HSE. #189
HSE. #169
HSE. #30
HSE. #36
HSE. #42
GARAGE
SHED
DECK
PORCH
124.17
118.77
115.67
114.17
116.17
0+00
0+85.19
0+80.37
APPROVED

NOTES:

1. DATUM NAVD 1988 (ADD 0.83' TO CONVERT ELEVATIONS TO NGVD 1929)

2. COFFERDAM / WATER CONTROLS ARE APPROXIMATE AND ARE SHOWN HERE FOR PERMITTING PURPOSES. CONTRACTOR SHALL SUBMIT PLANS SHOWING ACTUAL LOCATIONS.

3. FOR DAM LAYOUT SEE SHEET C4.

4. UPSTREAM COFFERDAMS (WARNER'S POND SIDE) SHALL CONSIST OF THE PORT-A-DAM SYSTEM OR APPROVED EQUAL. THE TOP OF THE COFFERDAM SHALL HAVE A MINIMUM ELEVATION OF 123.5'. SEE SPECIFICATION SECTION 02170 FOR MORE INFORMATION.

5. THE DOWNSTREAM COFFERDAMS (STILLING POOL SIDE) SHALL BE CONSTRUCTED OF NON-ERODABLE MATERIALS. THE TOP OF THE COFFERDAMS SHALL HAVE A MINIMUM ELEVATION OF 117'. SEE SPECIFICATION SECTION 02170 FOR MORE INFORMATION.

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REVIEWED BY: V.A.O./P.B.
OPERATOR: L.M. BRIDE
DATE: JUNE 2006

WARNER'S POND DAM
REHABILITATION
TOWN OF CONCORD, MA

PROPOSED IMPROVEMENTS

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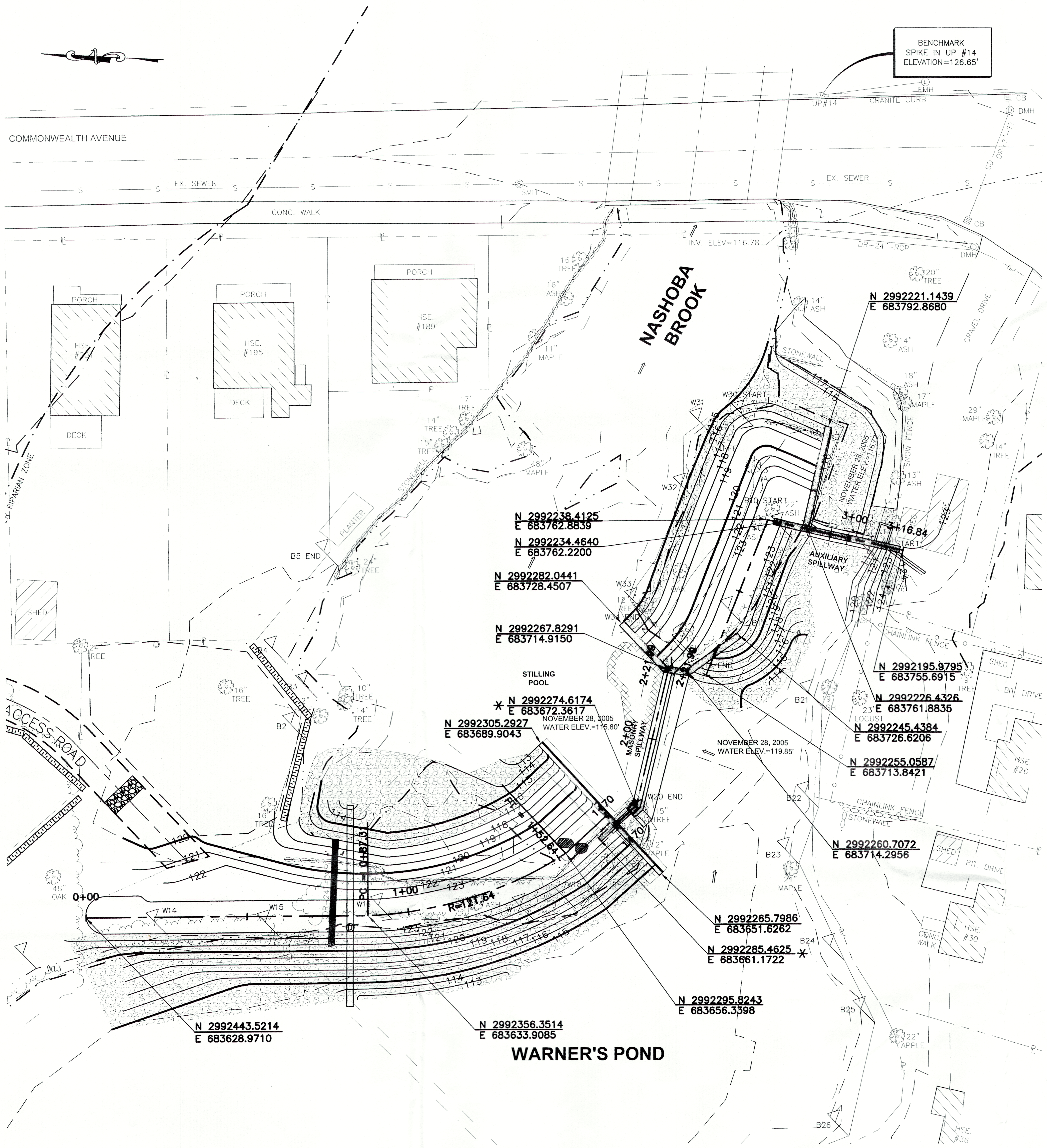
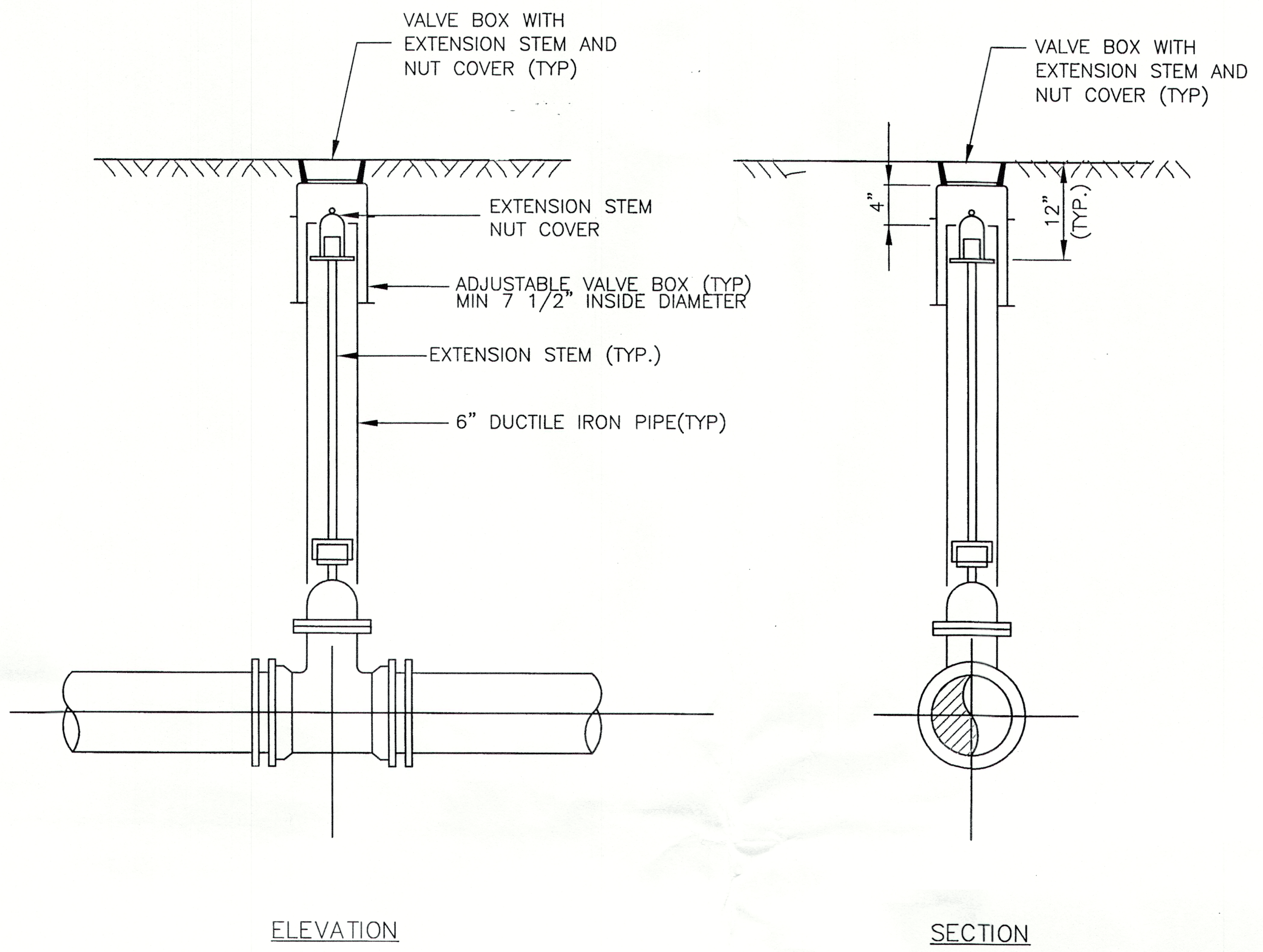


DAM LAYOUT PLAN

SCALE: 1"=20'

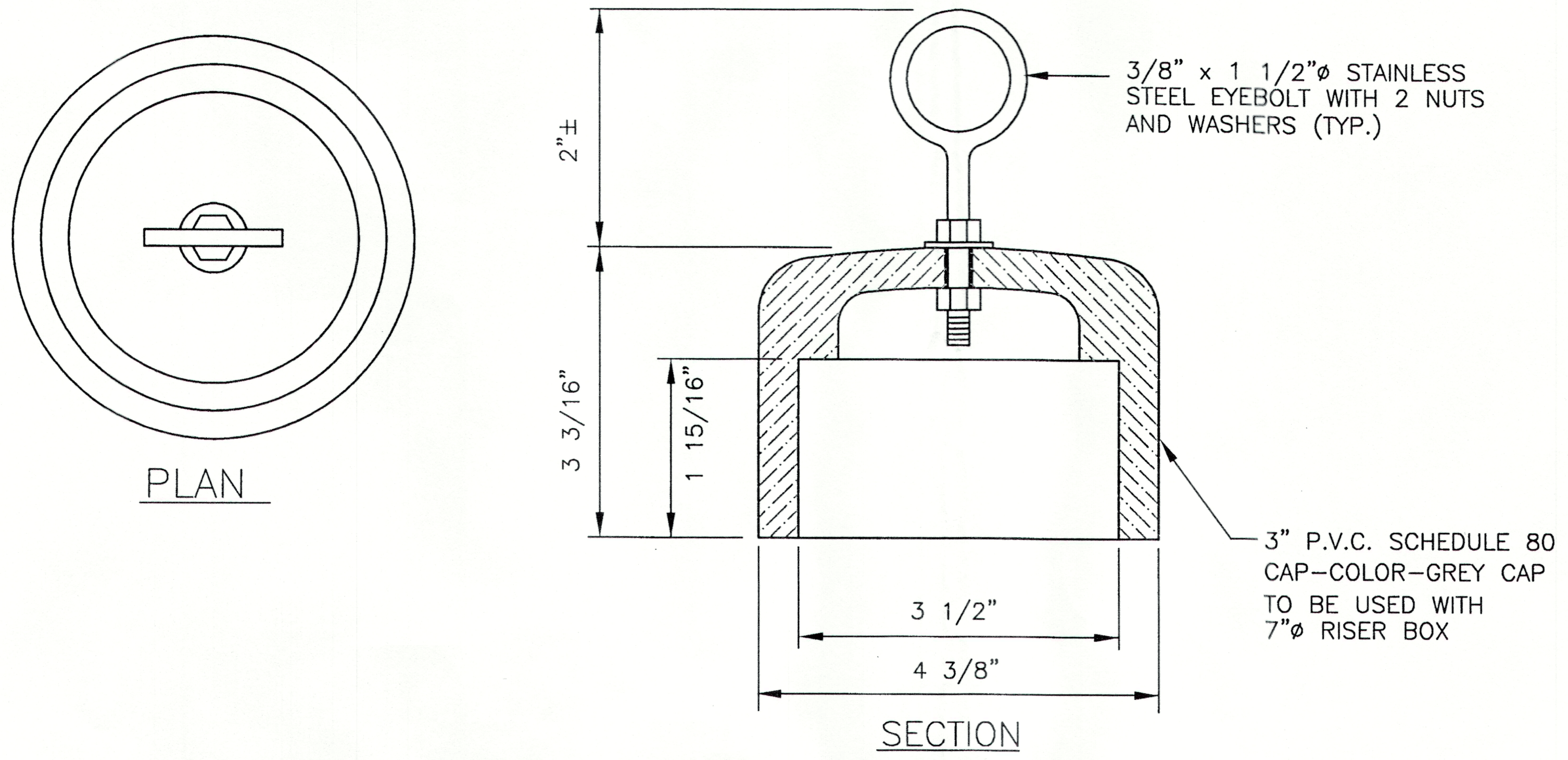
NOTES:

1. DATUM NAVD 1988 (ADD 0.83' TO CONVERT ELEVATIONS TO NGVD 1929)
2. * VERIFY IN FIELD TO MATCH END OF EXISTING MASONRY SPILLWAY.


VALVE BOX WITH EXTENSION STEM AND NUT COVER (TYP)
EXTENSION STEM NUT COVER
ADJUSTABLE VALVE BOX (TYP) MIN 7 1/2" INSIDE DIAMETER
EXTENSION STEM (TYP.)
6" DUCTILE IRON PIPE(TYP)
ELEVATION
VALVE BOX WITH EXTENSION STEM AND NUT COVER (TYP)
4"
12" (TYP.)
SECTION

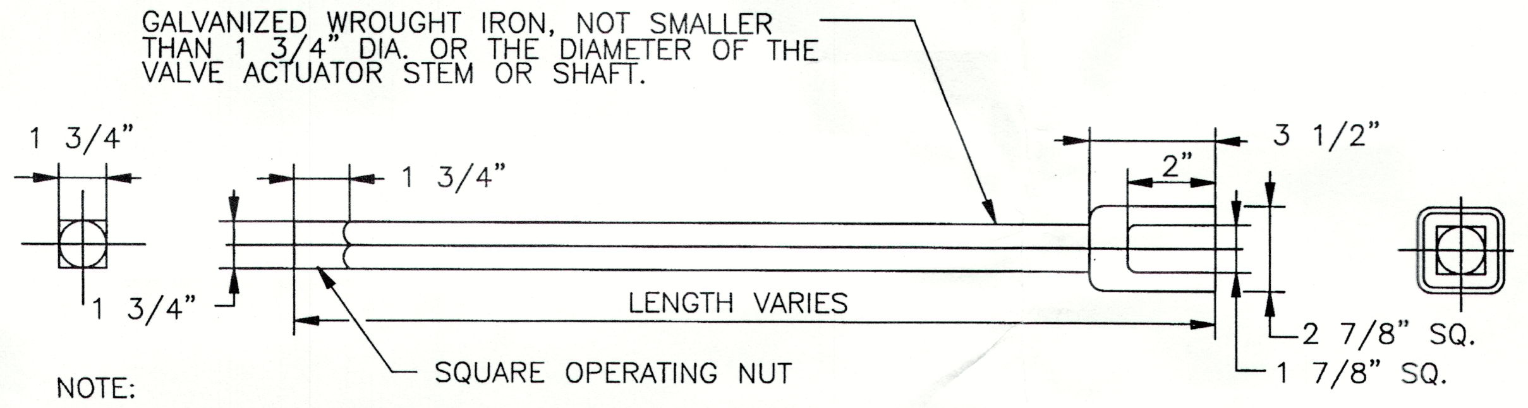
TYPICAL BURIED GATE VALVE

SCALE: NOT TO SCALE


PLAN
3/8" x 1 1/2"ø STAINLESS STEEL EYEBOLT WITH 2 NUTS AND WASHERS (TYP.)
2"±
3 3/16"
1 15/16"
3 1/2"
4 3/8"
3" P.V.C. SCHEDULE 80 CAP—COLOR—GREY CAP TO BE USED WITH 7"ø RISER BOX
SECTION

TYPICAL BURIED GATE VALVE CAP

SCALE: NOT TO SCALE

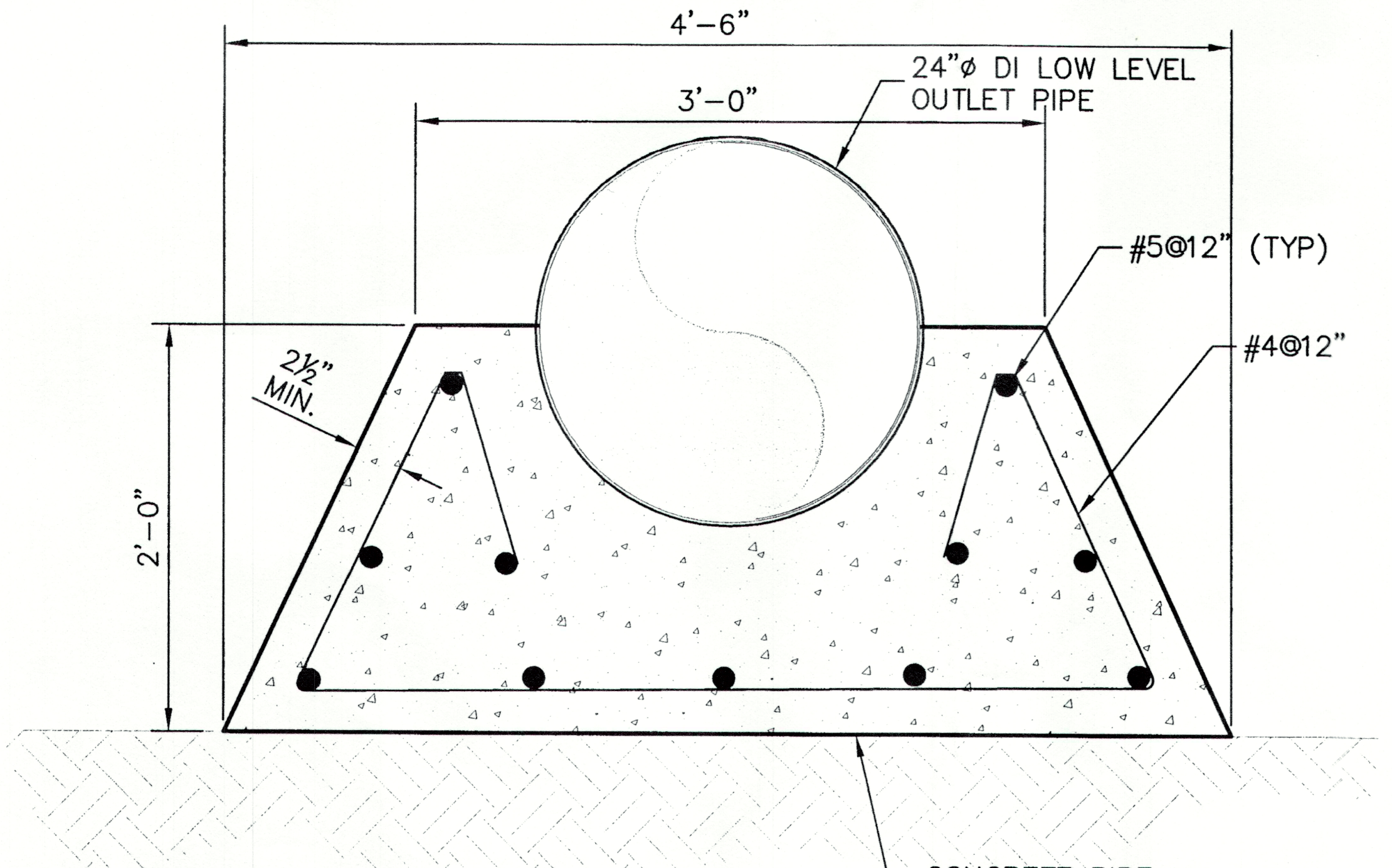

GALVANIZED WROUGHT IRON, NOT SMALLER THAN 1 3/4" DIA. OR THE DIAMETER OF THE VALVE ACTUATOR STEM OR SHAFT.
1 3/4"
1 3/4"
1 3/4"
2"
3 1/2"
LENGTH VARIES
SQUARE OPERATING NUT
2 7/8" SQ.
1 7/8" SQ.

NOTE:

DETERMINE LENGTH OF THE EXTENSION STEMS BY FIELD MEASUREMENTS AFTER VALVE HAS BEEN INSTALLED. SOLID SHAFT 5'-0" OR UNDER, HOLLOW SHAFT IF OVER 5'-0".

EXTENSION STEM DETAIL

SCALE: NOT TO SCALE


4'-6"
3'-0"
24"ø DI LOW LEVEL OUTLET PIPE
#5@12" (TYP)
#4@12"
2½" MIN.
2'-0"
CONCRETE PIPE CRADLE CAST IN PLACE

NOTE:
BACKFILL ABOVE CONCRETE BASE AT LEAST
3 DAYS AFTER CONCRETE PLACEMENT

CONCRETE PIPE CRADLE

SCALE: 1"=1'

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DESIGNED BY: C. HAKER
REVIEWED BY: V.A.O./P.B.
OPERATOR: L.M. BRIDE
DATE: JUNE 2006

WARNER'S POND DAM
REHABILITATION
TOWN OF CONCORD, MA

DAM LAYOUT PLAN
AND PIPING DETAILS

PROJECT NO.
18834.00

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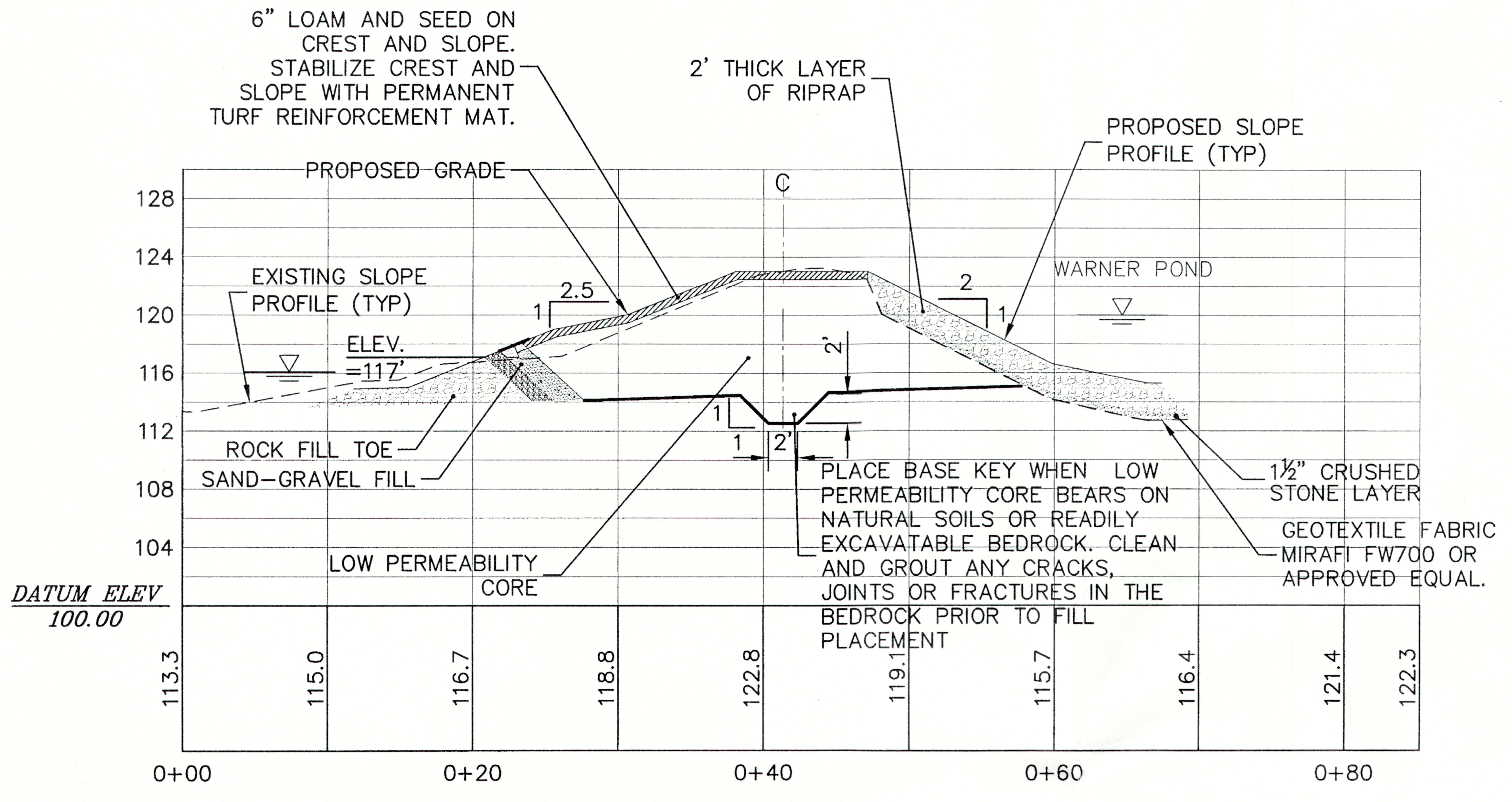
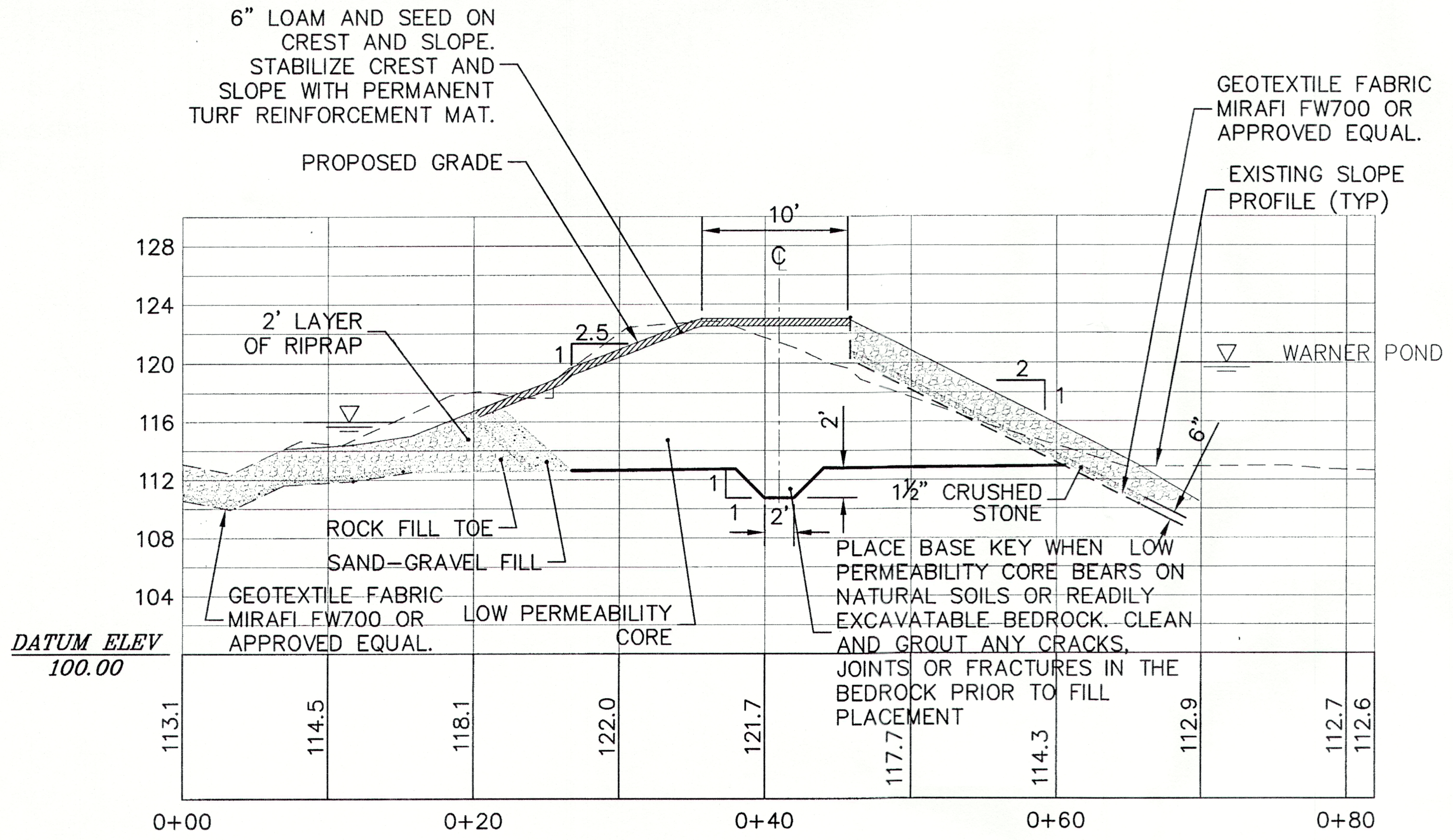
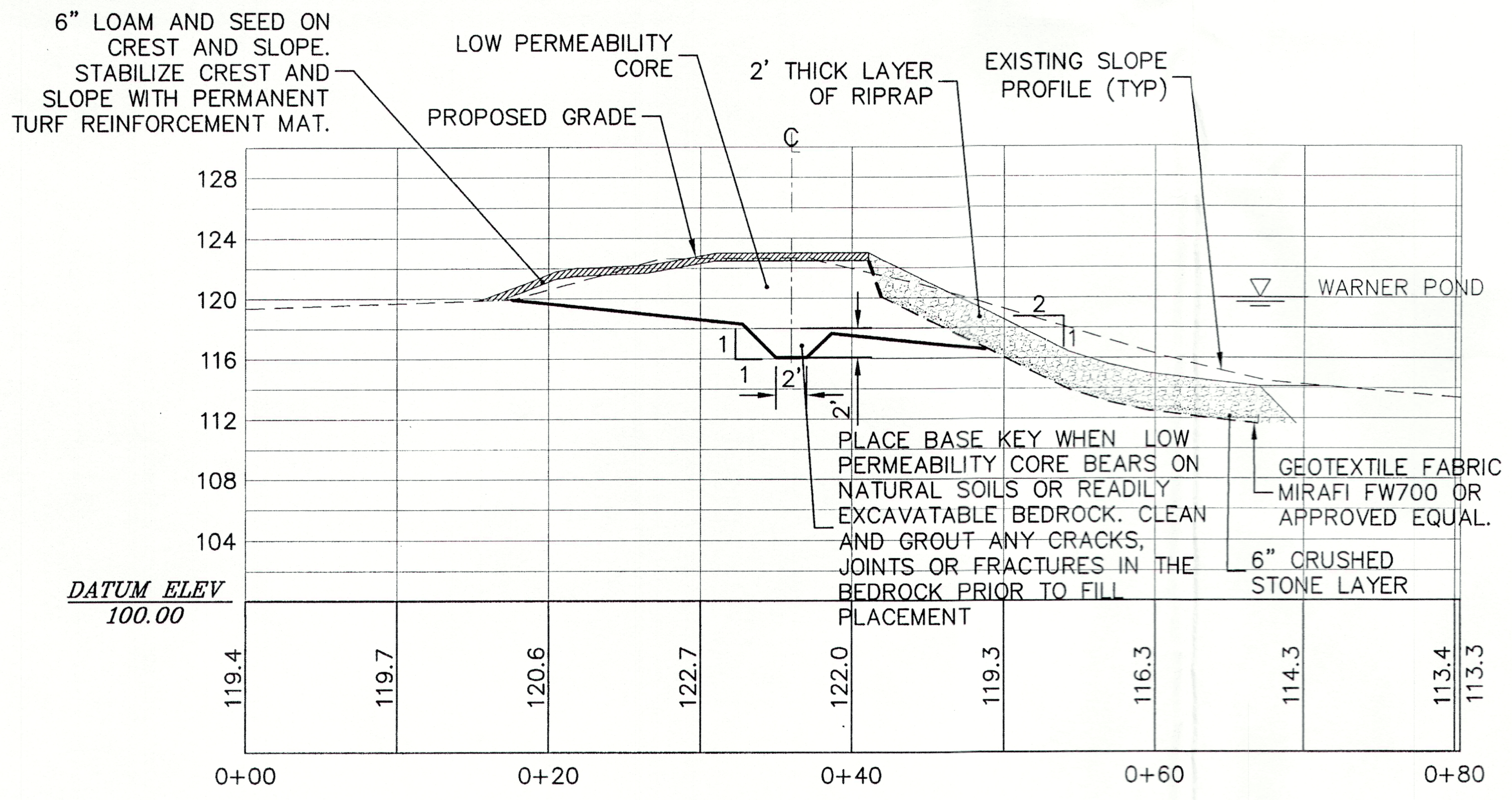

6" LOAM AND SEED ON CREST AND SLOPE. STABILIZE CREST AND SLOPE WITH PERMANENT TURF REINFORCEMENT MAT.
2' THICK LAYER OF RIPRAP
PROPOSED SLOPE PROFILE (TYP)
PROPOSED GRADE
C
WARNER POND
EXISTING SLOPE PROFILE (TYP)
ELEV. =117'
2.5
1
2
1
2'
1
1
2'
ROCK FILL TOE
SAND-GRAVEL FILL
LOW PERMEABILITY CORE
PLACE BASE KEY WHEN LOW PERMEABILITY CORE BEARS ON NATURAL SOILS OR READILY EXCAVATABLE BEDROCK. CLEAN AND GROUT ANY CRACKS, JOINTS OR FRACTURES IN THE BEDROCK PRIOR TO FILL PLACEMENT
1½" CRUSHED STONE LAYER
GEOTEXTILE FABRIC MIRAFI FW700 OR APPROVED EQUAL.
128
124
120
116
112
108
104
DATUM ELEV 100.00
113.3
115.0
116.7
118.8
122.8
119.1
115.7
116.4
121.4
122.3
0+00
0+20
0+40
0+60
0+80

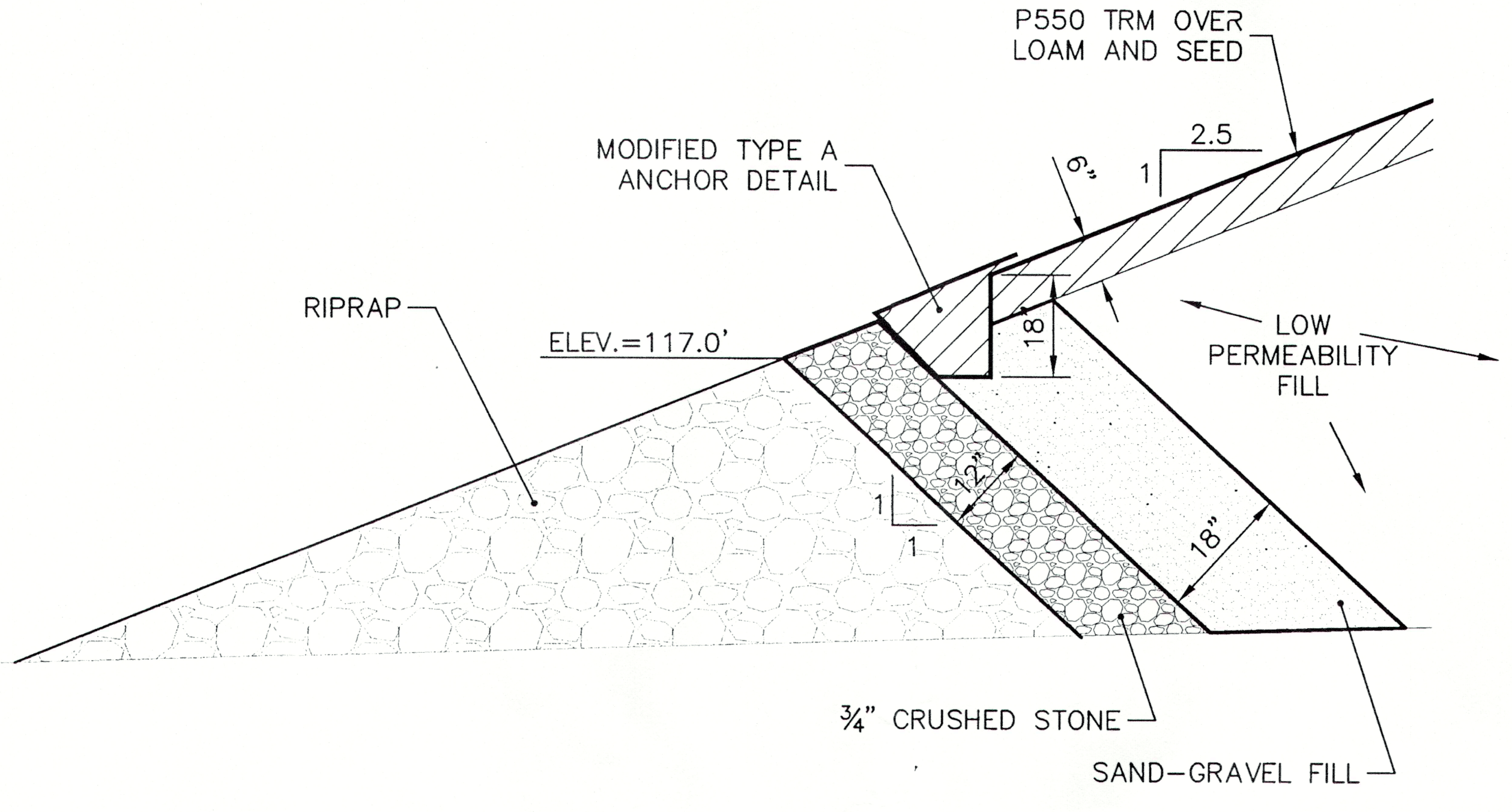
1/C3 SECTION 1
SCALE: 1"=10'


6" LOAM AND SEED ON CREST AND SLOPE. STABILIZE CREST AND SLOPE WITH PERMANENT TURF REINFORCEMENT MAT.
PROPOSED GRADE
GEOTEXTILE FABRIC MIRAFI FW700 OR APPROVED EQUAL.
EXISTING SLOPE PROFILE (TYP)
10'
C
2' LAYER OF RIPRAP
2.5
1
2
1
WARNER POND
6"
2'
1
1
2'
1½" CRUSHED STONE
ROCK FILL TOE
SAND-GRAVEL FILL
GEOTEXTILE FABRIC MIRAFI FW700 OR APPROVED EQUAL.
LOW PERMEABILITY CORE
PLACE BASE KEY WHEN LOW PERMEABILITY CORE BEARS ON NATURAL SOILS OR READILY EXCAVATABLE BEDROCK. CLEAN AND GROUT ANY CRACKS, JOINTS OR FRACTURES IN THE BEDROCK PRIOR TO FILL PLACEMENT
128
124
120
116
112
108
104
DATUM ELEV 100.00
113.1
114.5
118.1
122.0
121.7
117.7
114.3
112.9
112.7
112.6
0+00
0+20
0+40
0+60
0+80

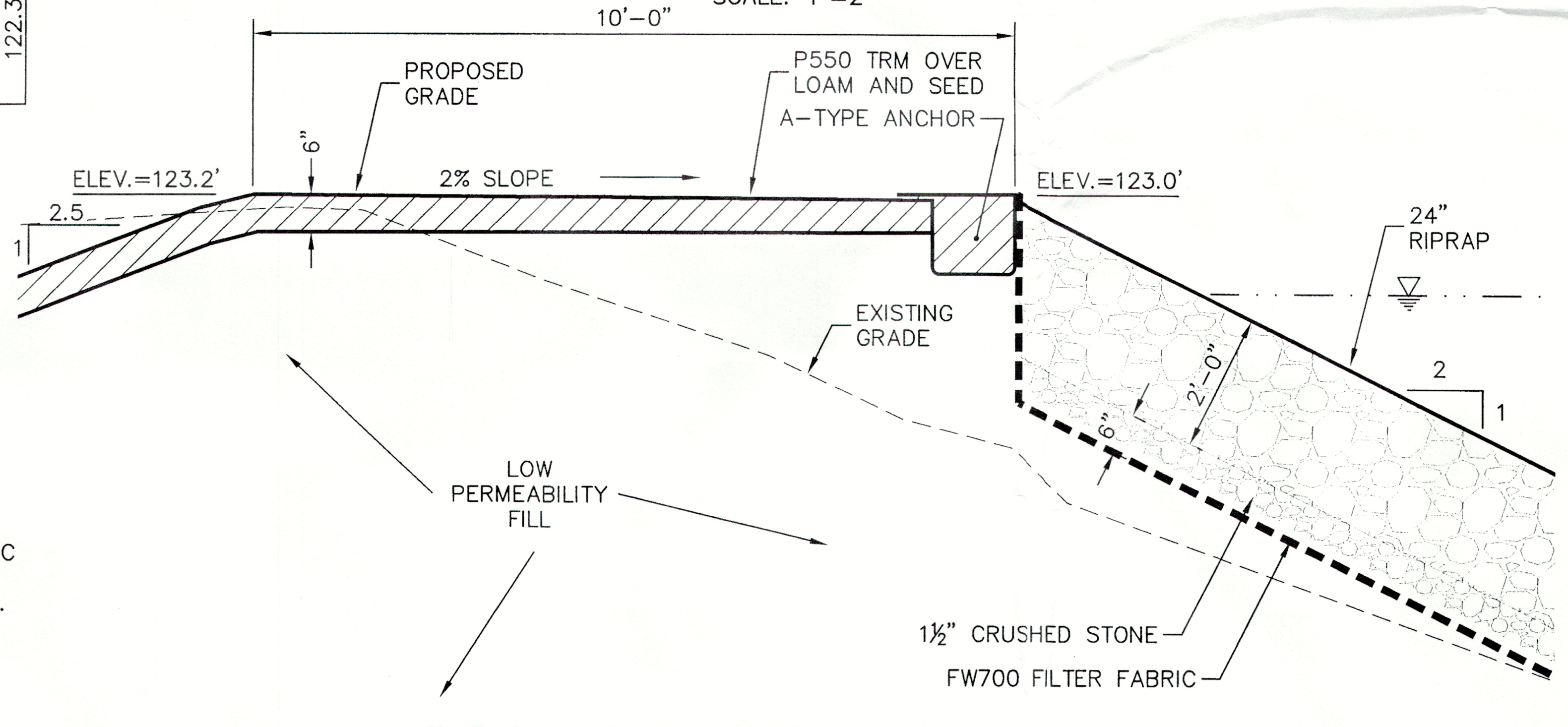
2/C3 SECTION 2
SCALE: 1"=10'


6" LOAM AND SEED ON CREST AND SLOPE. STABILIZE CREST AND SLOPE WITH PERMANENT TURF REINFORCEMENT MAT.
LOW PERMEABILITY CORE
PROPOSED GRADE
2' THICK LAYER OF RIPRAP
EXISTING SLOPE PROFILE (TYP)
C
WARNER POND
2
1
1
1
2'
PLACE BASE KEY WHEN LOW PERMEABILITY CORE BEARS ON NATURAL SOILS OR READILY EXCAVATABLE BEDROCK. CLEAN AND GROUT ANY CRACKS, JOINTS OR FRACTURES IN THE BEDROCK PRIOR TO FILL PLACEMENT
GEOTEXTILE FABRIC MIRAFI FW700 OR APPROVED EQUAL.
6" CRUSHED STONE LAYER
128
124
120
116
112
108
104
DATUM ELEV 100.00
119.4
119.7
120.6
122.7
122.0
119.3
116.3
114.3
113.4
113.3
0+00
0+20
0+40
0+60
0+80

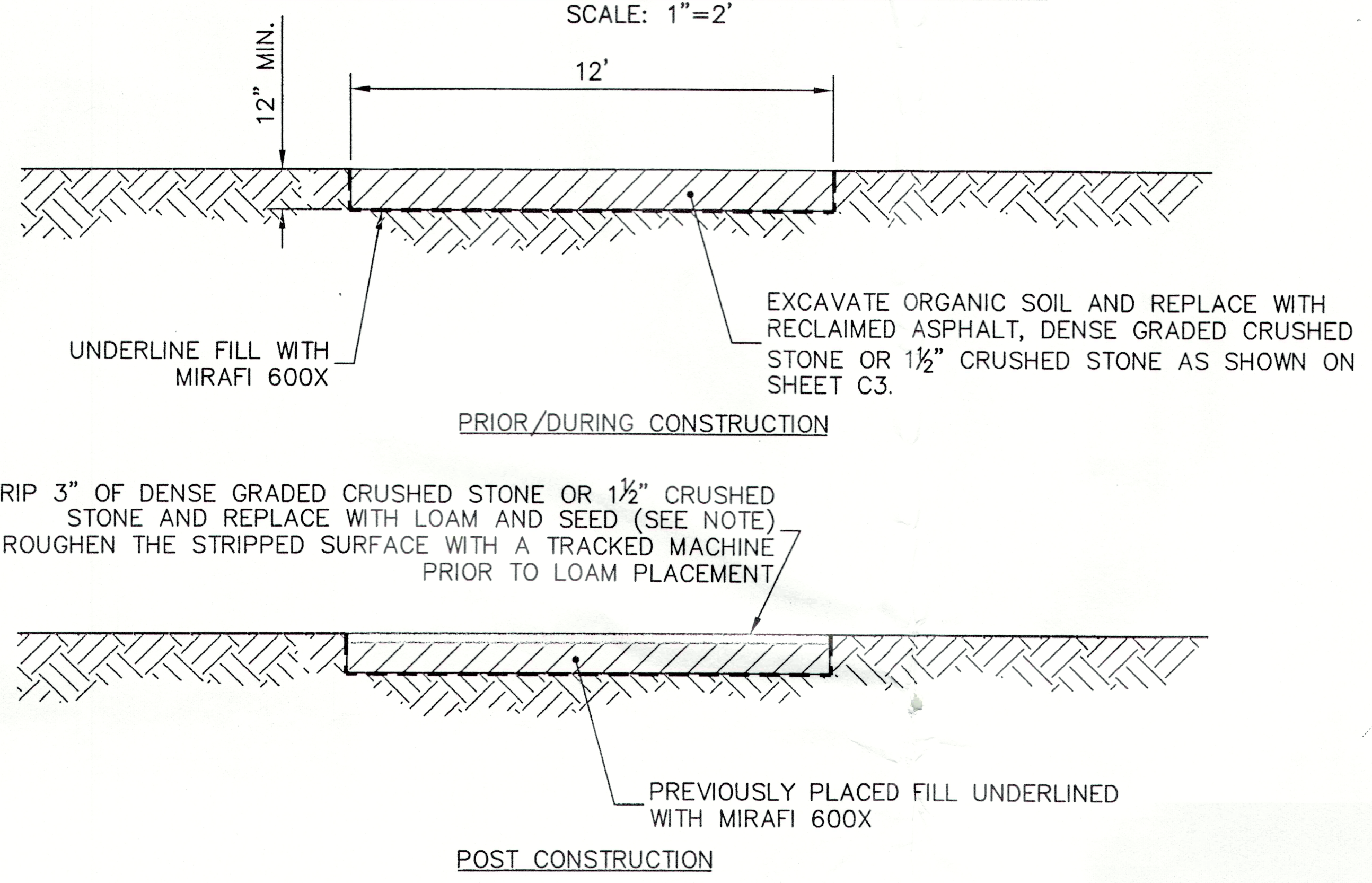
3/C3 SECTION 3
SCALE: 1"=10'



TYPICAL DOWNSTREAM RIPRAP TOE DETAIL
SCALE: 1"=2'

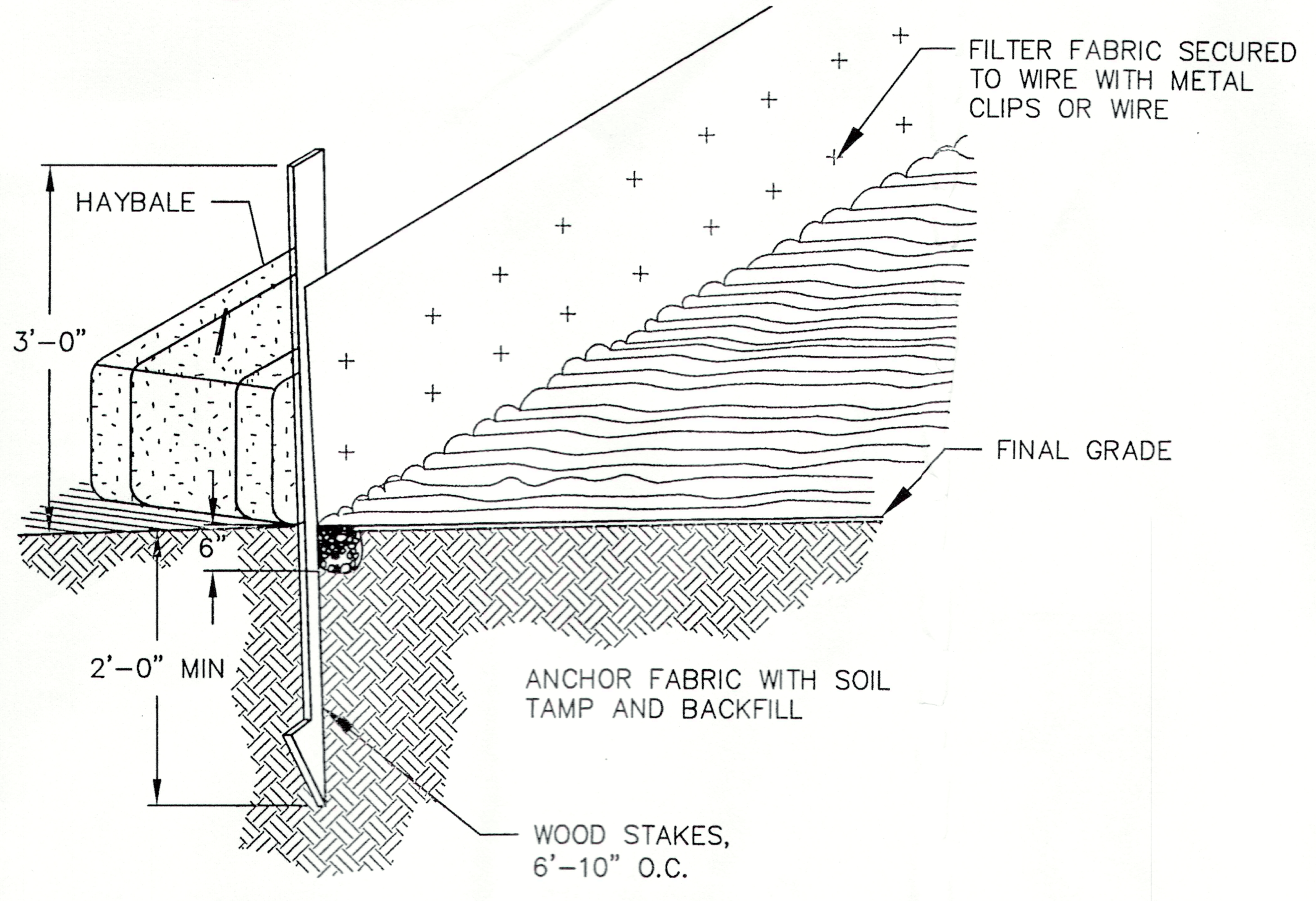


TYPICAL EMBANKMENT CREST DETAIL
SCALE: 1"=2'

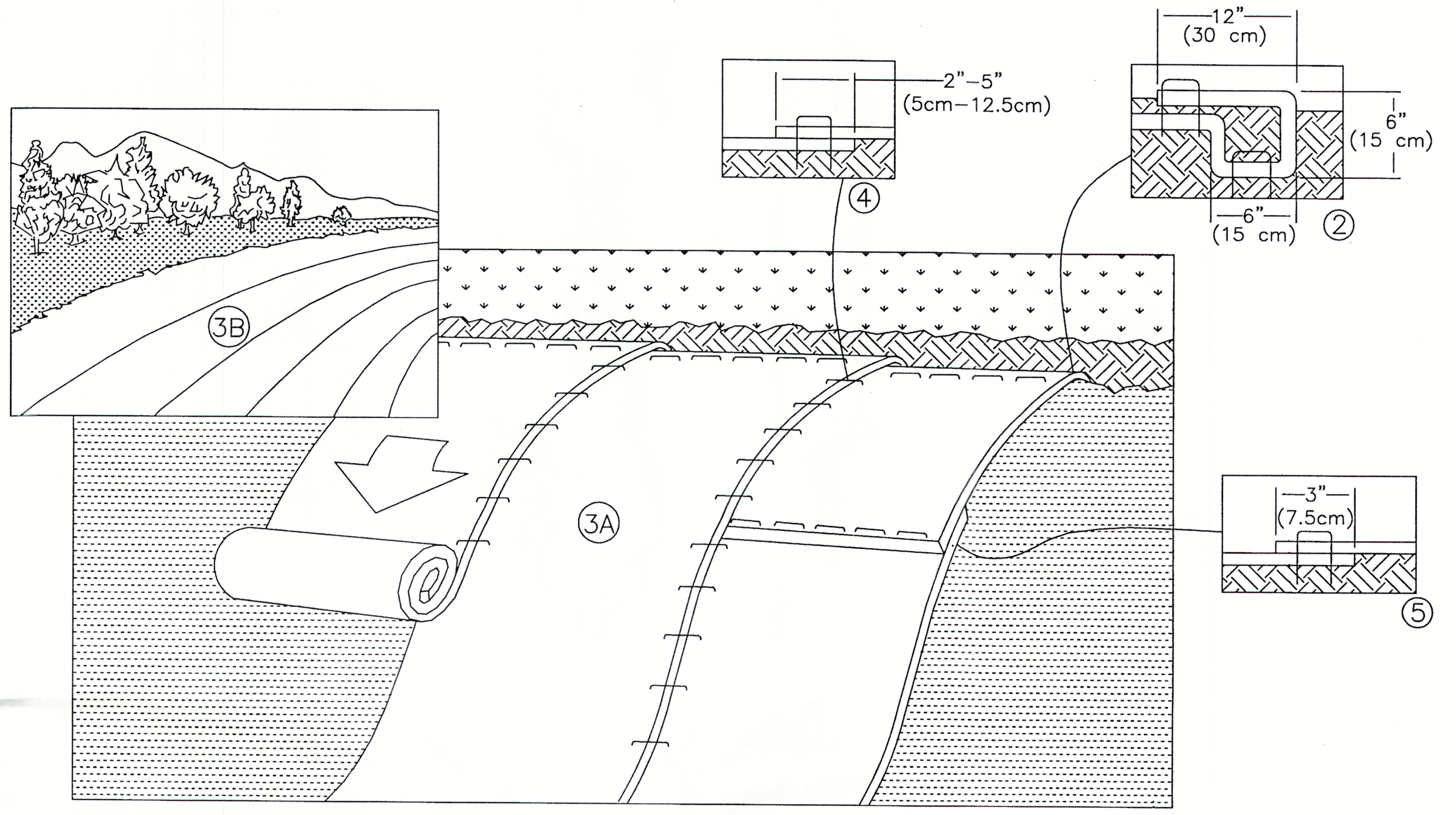

12" MIN.
12'
UNDERLINE FILL WITH MIRAFI 600X
EXCAVATE ORGANIC SOIL AND REPLACE WITH RECLAIMED ASPHALT, DENSE GRADED CRUSHED STONE OR 1½" CRUSHED STONE AS SHOWN ON SHEET C3.
PRIOR/DURING CONSTRUCTION
STRIP 3" OF DENSE GRADED CRUSHED STONE OR 1½" CRUSHED STONE AND REPLACE WITH LOAM AND SEED (SEE NOTE) ROUGHEN THE STRIPPED SURFACE WITH A TRACKED MACHINE PRIOR TO LOAM PLACEMENT
PREVIOUSLY PLACED FILL UNDERLINED WITH MIRAFI 600X
POST CONSTRUCTION

NOTE: STRIPPING AND REPLACEMENT WITH LOAM AND SEED NOT REQUIRED WHERE ROAD WAS CONSTRUCTED WITH RECLAIMED ASPHALT.

F/C3 ACCESS ROAD DETAIL
SCALE: 1"=3'


FILTER FABRIC SECURED TO WIRE WITH METAL CLIPS OR WIRE
HAYBALE
3'-0"
6"
FINAL GRADE
2'-0" MIN
ANCHOR FABRIC WITH SOIL TAMP AND BACKFILL
WOOD STAKES, 6'-10" O.C.

HAYBALE AND SILT FENCE DETAIL
SCALE: 1"=2'



1. INSTALL TURF REINFORCEMENT MAT (TRM) IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS. MANUFACTURERS REPRESENTATIVE SHALL INSPECT THE SITE PREPARATION PRIOR TO INSTALLATION OF THE TURF REINFORCEMENT MAT AND PROVIDE ON SITE SUPERVISION FOR THE INSTALLATION. UPON COMPLETION, THE REPRESENTATIVE SHALL PROVIDE WRITTEN CERTIFICATION AS TO THE ACCEPTABILITY OF THE INSTALLATION.

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

3. BEGIN AT THE TOP OF THE SLOPE BY ANCHORING THE TRM IN A 6"dX6"w TRENCH WITH APPROXIMATELY 12" OF TRM EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE TRM WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF TRM BACK OVER SEED AND COMPACTED SOIL. SECURE TRM OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE TRM

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

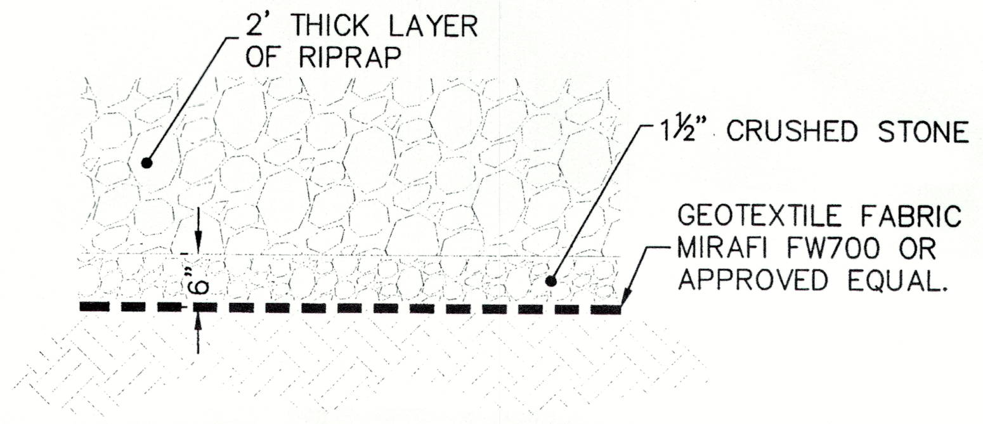
5. THE EDGES OF PARALLEL TRM MUST BE STAPLED WITH APPROXIMATELY 2"-5" OVERLAP DEPENDING ON TRM TYPE.

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

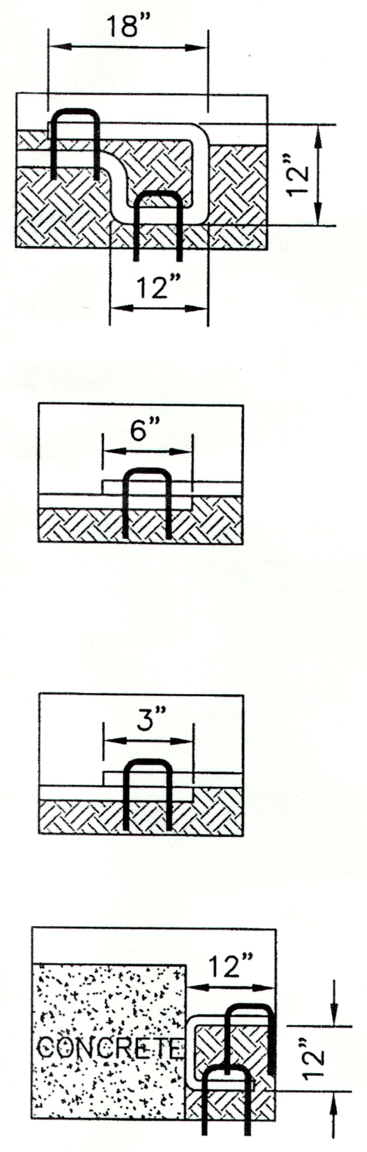
NOTE: IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE TRM.

7. WHERE THE BLANKETS RUN PARALLEL TO CONCRETE OR STONE MASONRY WALL, PLACE AND SECURE BLANKET WITH D-TYPE ANCHOR.

SLOPE REINFORCEMENT DETAIL
NOT TO SCALE



TYPICAL RIPRAP DETAIL
SCALE: 1"=5'



A TYPE ANCHOR
(TOP OF SLOPE/CREST, TERMINATION OF TRM)

B TYPE ANCHOR
(LENGTH OF OVERLAP)

C TYPE ANCHOR
(WIDTH OF OVERLAP)

D TYPE ANCHOR
(CONCRETE/MASONRY INTERFACE)

TRM ANCHOR TYPES
NOT TO SCALE

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TOWN OF CONCORD NATURAL RESOURCES

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SCALE: 1" = 20'
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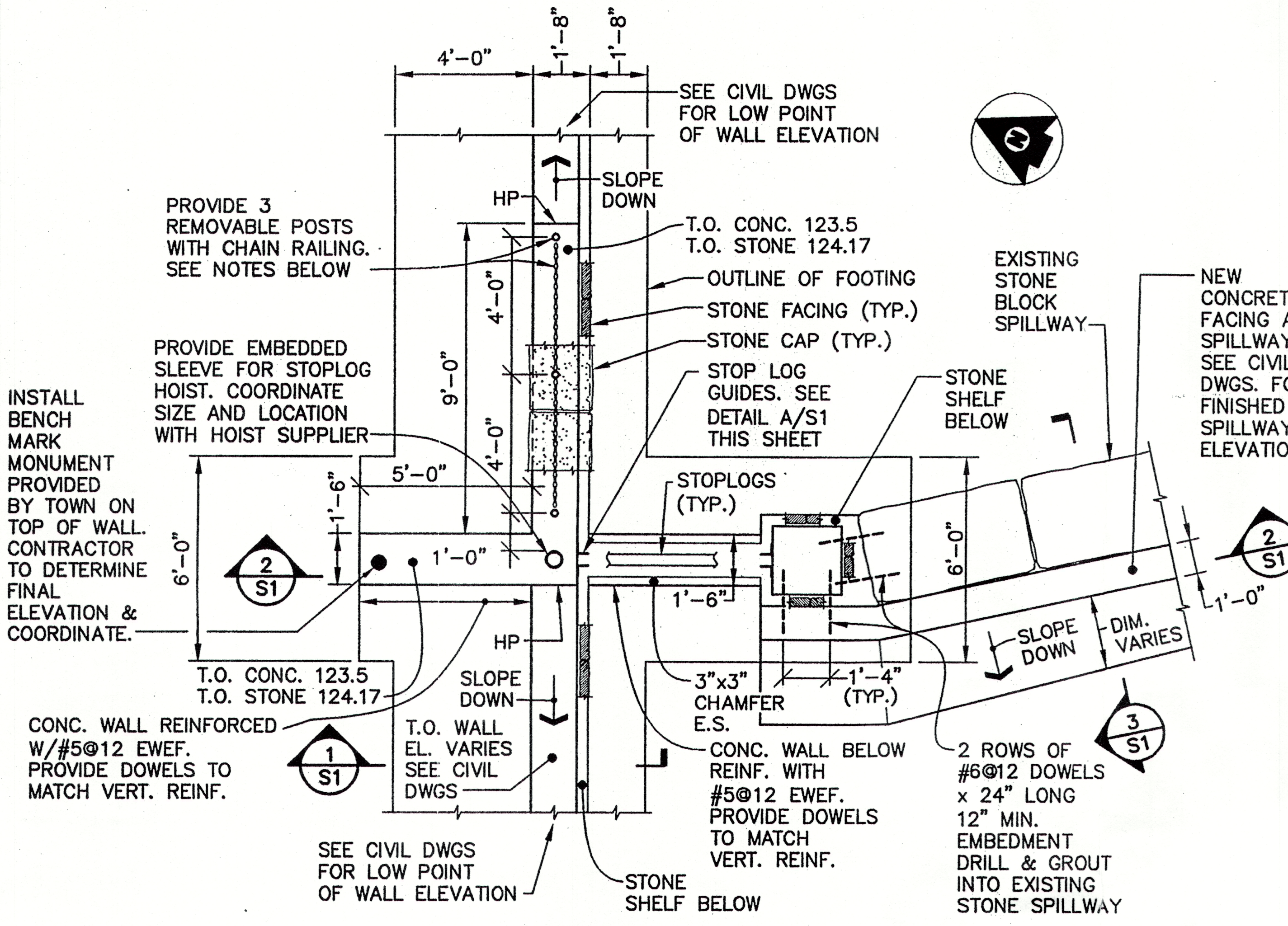
DESIGNED BY: C. HAKER
REVIEWED BY: V.A.O./P.B.
OPERATOR: L.M. BRIDE
DATE: JUNE 2006

WARNER'S POND DAM
REHABILITATION
TOWN OF CONCORD, MA

EMBANKMENT SECTIONS
AND DETAILS

PROJECT NO.
18834.00

DRAWING
C5

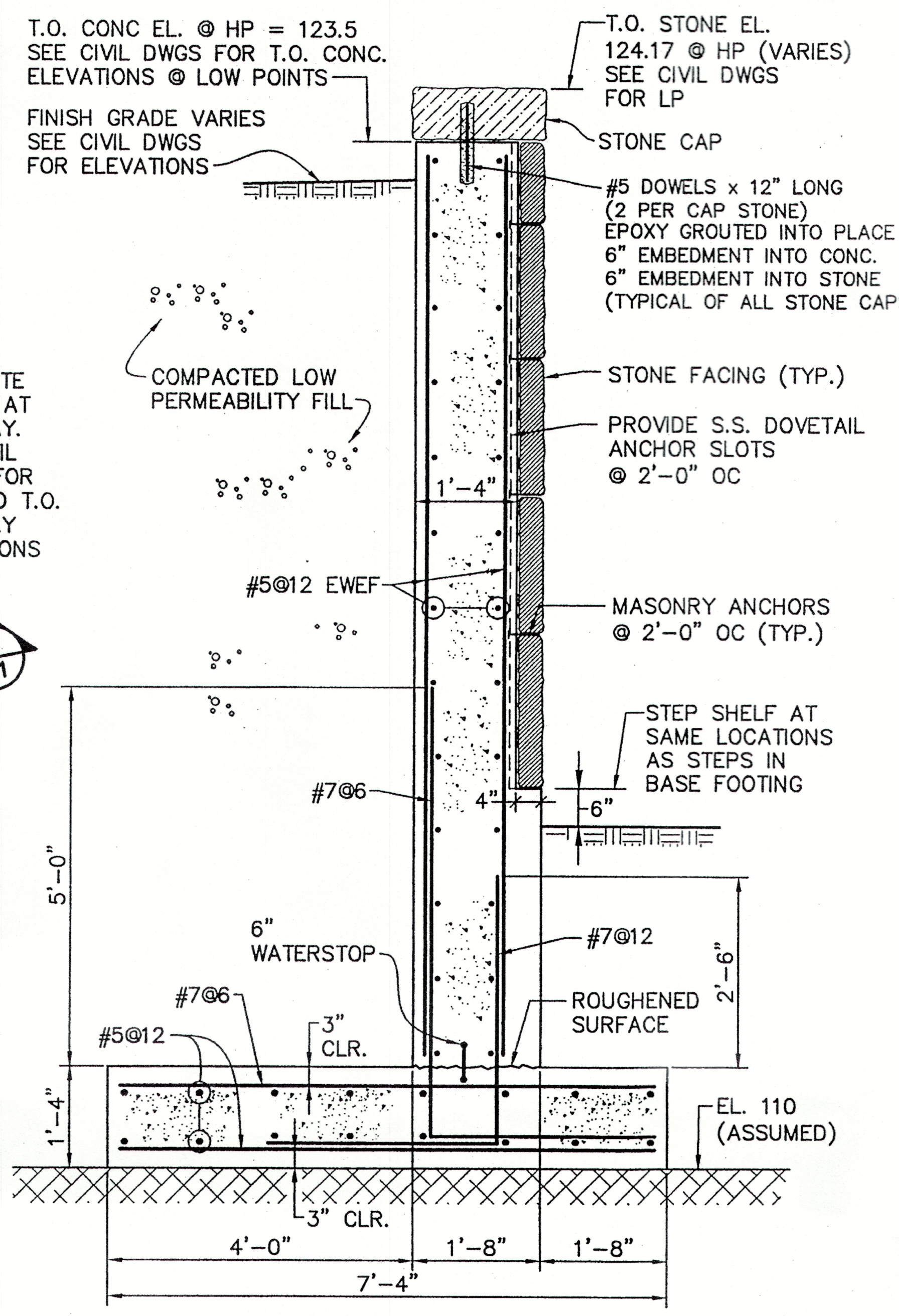

4'-0"
1'-8"
1'-8"
SEE CIVIL DWGS FOR LOW POINT OF WALL ELEVATION
SLOPE DOWN
HP
PROVIDE 3 REMOVABLE POSTS WITH CHAIN RAILING. SEE NOTES BELOW
T.O. CONC. 123.5
T.O. STONE 124.17
OUTLINE OF FOOTING
STONE FACING (TYP.)
STONE CAP (TYP.)
PROVIDE EMBEDDED SLEEVE FOR STOPLOG HOIST. COORDINATE SIZE AND LOCATION WITH HOIST SUPPLIER
STOP LOG GUIDES. SEE DETAIL A/S1 THIS SHEET
EXISTING STONE BLOCK SPILLWAY
NEW CONCRETE FACING AT SPILLWAY. SEE CIVIL DWGS. FOR FINISHED T.O. SPILLWAY ELEVATIONS
STONE SHELF BELOW
INSTALL BENCH MARK MONUMENT PROVIDED BY TOWN ON TOP OF WALL. CONTRACTOR TO DETERMINE FINAL ELEVATION & COORDINATE.
9'-0"
4'-0"
4'-0"
5'-0"
1'-6"
6'-0"
1'-0"
STOPLOGS (TYP.)
2 S1
6'-0"
1'-0"
1'-6"
SLOPE DOWN
DIM. VARIES
HP
T.O. CONC. 123.5
T.O. STONE 124.17
SLOPE DOWN
3"x3" CHAMFER E.S.
1'-4" (TYP.)
CONC. WALL REINFORCED W/#5@12 EWEF. PROVIDE DOWELS TO MATCH VERT. REINF.
1 S1
T.O. WALL EL. VARIES SEE CIVIL DWGS
CONC. WALL BELOW REINF. WITH #5@12 EWEF. PROVIDE DOWELS TO MATCH VERT. REINF.
2 ROWS OF #6@12 DOWELS x 24" LONG 12" MIN. EMBEDMENT DRILL & GROUT INTO EXISTING STONE SPILLWAY
3 S1
SEE CIVIL DWGS FOR LOW POINT OF WALL ELEVATION
STONE SHELF BELOW

PARTIAL PLAN VIEW @ SLUICEWAY

1/4" = 1'-0"

REMOVABLE RAILING NOTES:

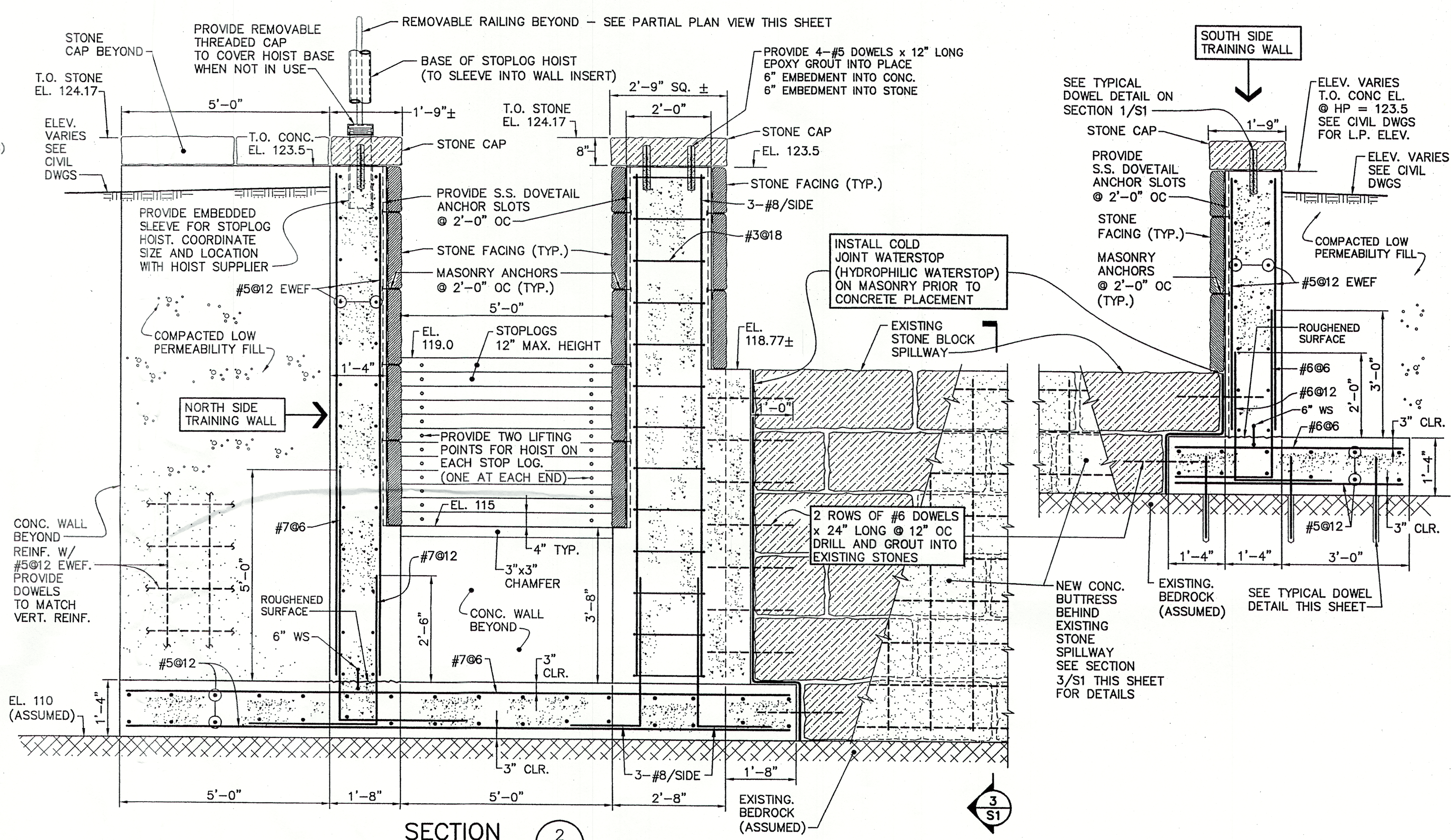
1. POSTS TO BE 2"ø ALUMINUM AND 3'-6" IN HEIGHT ABOVE THE TOP OF WALL.
2. LOCATE CHAIN RAILS AT 1ft, 2ft, AND 3ft ABOVE FINISH GRADE.
3. PROVIDE SLEEVED CONNECTION AT BASE OF RAILING POSTS. PROVIDE 8" MINIMUM EMBEDMENT INTO CONCRETE.
4. EMBED SLEEVED PIPE RECEIVER WITHIN STONE CAP.
5. PROVIDE THREADED CAP TO COVER SLEEVES AT HOIST AND RAILING WHEN NOT IN USE.


T.O. CONC EL. @ HP = 123.5 SEE CIVIL DWGS FOR T.O. CONC. ELEVATIONS @ LOW POINTS
FINISH GRADE VARIES SEE CIVIL DWGS FOR ELEVATIONS
T.O. STONE EL. 124.17 @ HP (VARIES) SEE CIVIL DWGS FOR LP
STONE CAP
#5 DOWELS x 12" LONG (2 PER CAP STONE) EPOXY GROUTED INTO PLACE 6" EMBEDMENT INTO CONC. 6" EMBEDMENT INTO STONE (TYPICAL OF ALL STONE CAPS)
COMPACTED LOW PERMEABILITY FILL
STONE FACING (TYP.)
PROVIDE S.S. DOVETAIL ANCHOR SLOTS @ 2'-0" OC
1'-4"
#5@12 EWEF
MASONRY ANCHORS @ 2'-0" OC (TYP.)
STEP SHELF AT SAME LOCATIONS AS STEPS IN BASE FOOTING
#7@6
4"
6"
5'-0"
6" WATERSTOP
#7@12
2'-6"
ROUGHENED SURFACE
#7@6
#5@12
3" CLR.
1'-4"
EL. 110 (ASSUMED)
3" CLR.
4'-0"
1'-8"
1'-8"
7'-4"

SECTION 1/S1

1/2" = 1'-0"

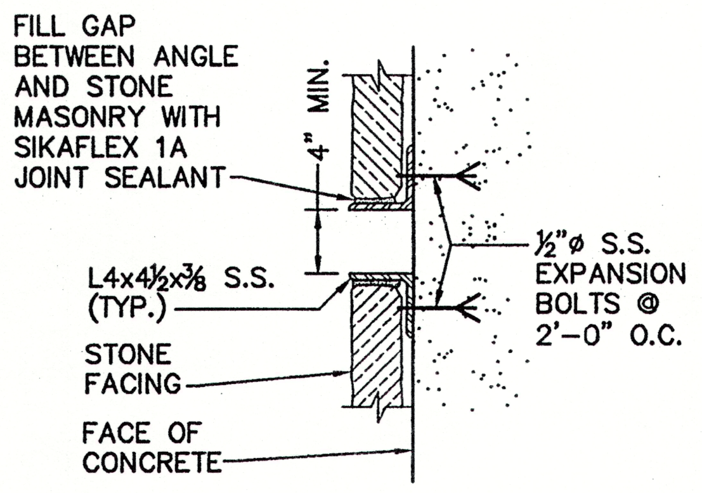
TYPICAL SPILLWAY TRAINING WALL @ MAIN SPILLWAY AND AUXILIARY SPILLWAY


REMOVABLE RAILING BEYOND – SEE PARTIAL PLAN VIEW THIS SHEET
STONE CAP BEYOND
PROVIDE REMOVABLE THREADED CAP TO COVER HOIST BASE WHEN NOT IN USE
BASE OF STOPLOG HOIST (TO SLEEVE INTO WALL INSERT)
T.O. STONE EL. 124.17
5'-0"
1'-9"±
T.O. STONE EL. 124.17
2'-9" SQ. ±
2'-0"
ELEV. VARIES SEE CIVIL DWGS
T.O. CONC. EL. 123.5
STONE CAP
8"
PROVIDE 4-#5 DOWELS x 12" LONG EPOXY GROUT INTO PLACE 6" EMBEDMENT INTO CONC. 6" EMBEDMENT INTO STONE
STONE CAP
EL. 123.5
STONE FACING (TYP.)
3-#8/SIDE
#3@18
PROVIDE EMBEDDED SLEEVE FOR STOPLOG HOIST. COORDINATE SIZE AND LOCATION WITH HOIST SUPPLIER
PROVIDE S.S. DOVETAIL ANCHOR SLOTS @ 2'-0" OC
STONE FACING (TYP.)
MASONRY ANCHORS @ 2'-0" OC (TYP.)
#5@12 EWEF
5'-0"
COMPACTED LOW PERMEABILITY FILL
EL. 119.0
STOPLOGS 12" MAX. HEIGHT
EL. 118.77±
1'-4"
NORTH SIDE TRAINING WALL
PROVIDE TWO LIFTING POINTS FOR HOIST ON EACH STOP LOG. (ONE AT EACH END)
EL. 115
INSTALL COLD JOINT WATERSTOP (HYDROPHILIC WATERSTOP) ON MASONRY PRIOR TO CONCRETE PLACEMENT
EXISTING STONE BLOCK SPILLWAY
1'-0"
2 ROWS OF #6 DOWELS x 24" LONG @ 12" OC DRILL AND GROUT INTO EXISTING STONES
CONC. WALL BEYOND REINF. W/ #5@12 EWEF. PROVIDE DOWELS TO MATCH VERT. REINF.
#7@6
#7@12
4" TYP.
3"x3" CHAMFER
ROUGHENED SURFACE
6" WS
CONC. WALL BEYOND
#5@12
#7@6
5'-0"
3'-8"
2'-6"
EL. 110 (ASSUMED)
1'-4"
3" CLR.
3" CLR.
3-#8/SIDE
1'-8"
5'-0"
1'-8"
5'-0"
2'-8"
EXISTING. BEDROCK (ASSUMED)
3 S1
SOUTH SIDE TRAINING WALL
SEE TYPICAL DOWEL DETAIL ON SECTION 1/S1
STONE CAP
1'-9"
ELEV. VARIES T.O. CONC EL. @ HP = 123.5 SEE CIVIL DWGS FOR L.P. ELEV.
ELEV. VARIES SEE CIVIL DWGS
PROVIDE S.S. DOVETAIL ANCHOR SLOTS @ 2'-0" OC
STONE FACING (TYP.)
COMPACTED LOW PERMEABILITY FILL
MASONRY ANCHORS @ 2'-0" OC (TYP.)
#5@12 EWEF
ROUGHENED SURFACE
#6@6
#6@12
6" WS
#6@6
3'-0"
2'-0"
3" CLR.
1'-4"
#5@12
3" CLR.
1'-4"
1'-4"
3'-0"
NEW CONC. BUTTRESS BEHIND EXISTING STONE SPILLWAY SEE SECTION 3/S1 THIS SHEET FOR DETAILS
EXISTING. BEDROCK (ASSUMED)
SEE TYPICAL DOWEL DETAIL THIS SHEET

SECTION 2/S1

1/2" = 1'-0"

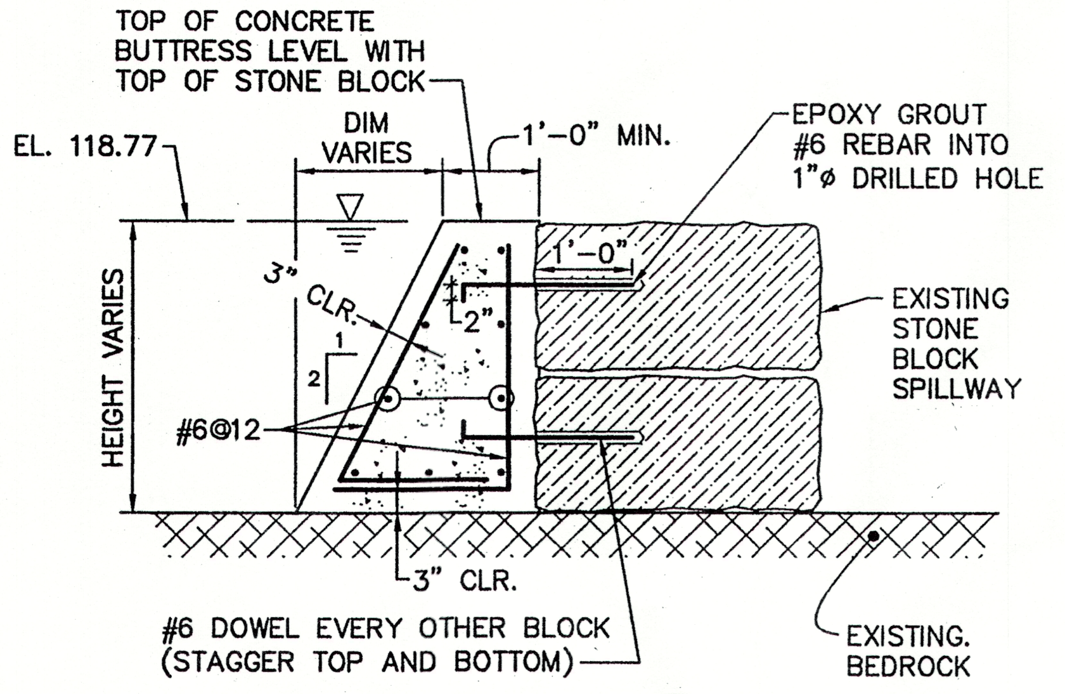
@ MAIN SPILLWAY


FILL GAP BETWEEN ANGLE AND STONE MASONRY WITH SIKAFLEX 1A JOINT SEALANT
4" MIN.
L4x4½x⅜ S.S. (TYP.)
½"ø S.S. EXPANSION BOLTS @ 2'-0" O.C.
STONE FACING
FACE OF CONCRETE

DETAIL A/S1

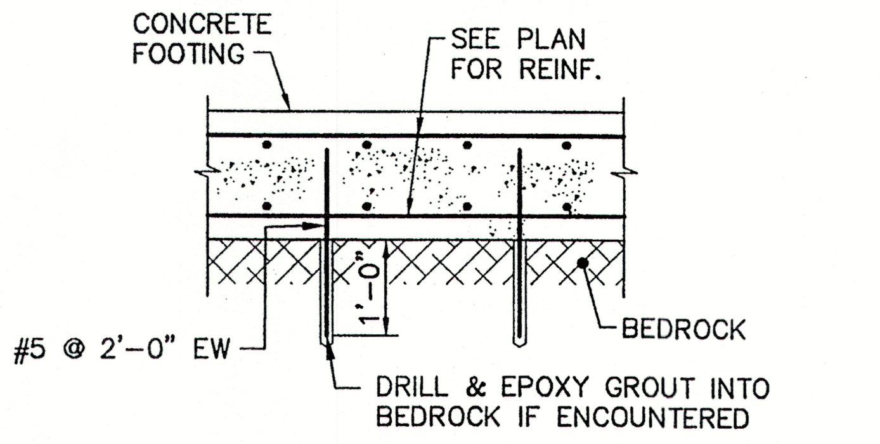
1" = 1'-0"

STOP LOG GUIDE MODIFY PER MANUFACTURER REUQIREMENTS.


TOP OF CONCRETE BUTTRESS LEVEL WITH TOP OF STONE BLOCK
EL. 118.77
DIM VARIES
1'-0" MIN.
EPOXY GROUT #6 REBAR INTO 1"ø DRILLED HOLE
3" CLR.
2"
1'-0"
1
2
HEIGHT VARIES
#6@12
EXISTING STONE BLOCK SPILLWAY
3" CLR.
#6 DOWEL EVERY OTHER BLOCK (STAGGER TOP AND BOTTOM)
EXISTING. BEDROCK

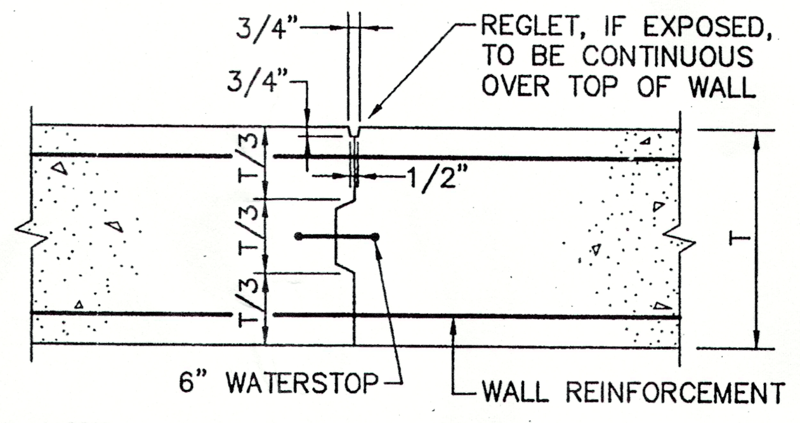
SECTION 3/S1

1/2" = 1'-0"



TYPICAL DOWEL DETAIL

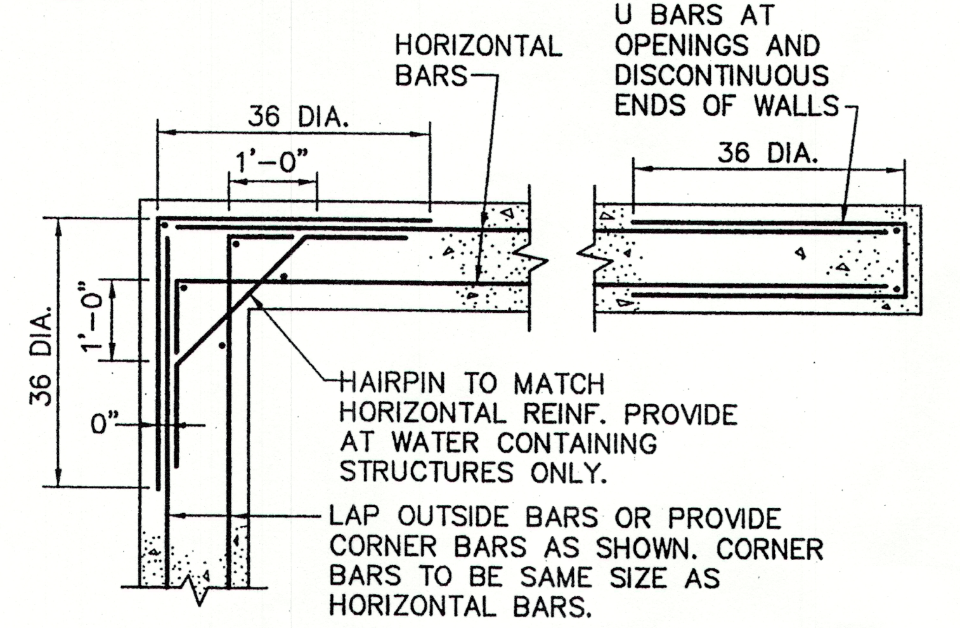
1/2" = 1'-0" (WHERE HIGH BEDROCK IS ENCOUNTERED)



NOTE: MAXIMUM JOINT SPACING = 30 FT.

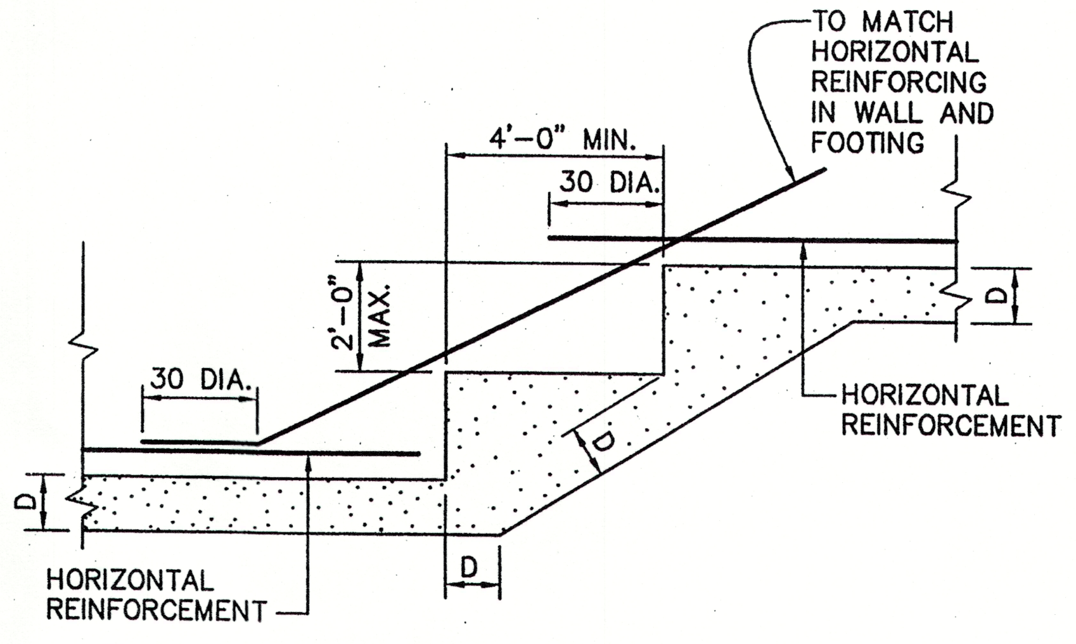
TYPICAL WALL CONSTRUCTION JOINT

NOT TO SCALE


HORIZONTAL BARS
U BARS AT OPENINGS AND DISCONTINUOUS ENDS OF WALLS
36 DIA.
1'-0"
36 DIA.
36 DIA.
1'-0"
0"
HAIRPIN TO MATCH HORIZONTAL REINF. PROVIDE AT WATER CONTAINING STRUCTURES ONLY.
LAP OUTSIDE BARS OR PROVIDE CORNER BARS AS SHOWN. CORNER BARS TO BE SAME SIZE AS HORIZONTAL BARS.

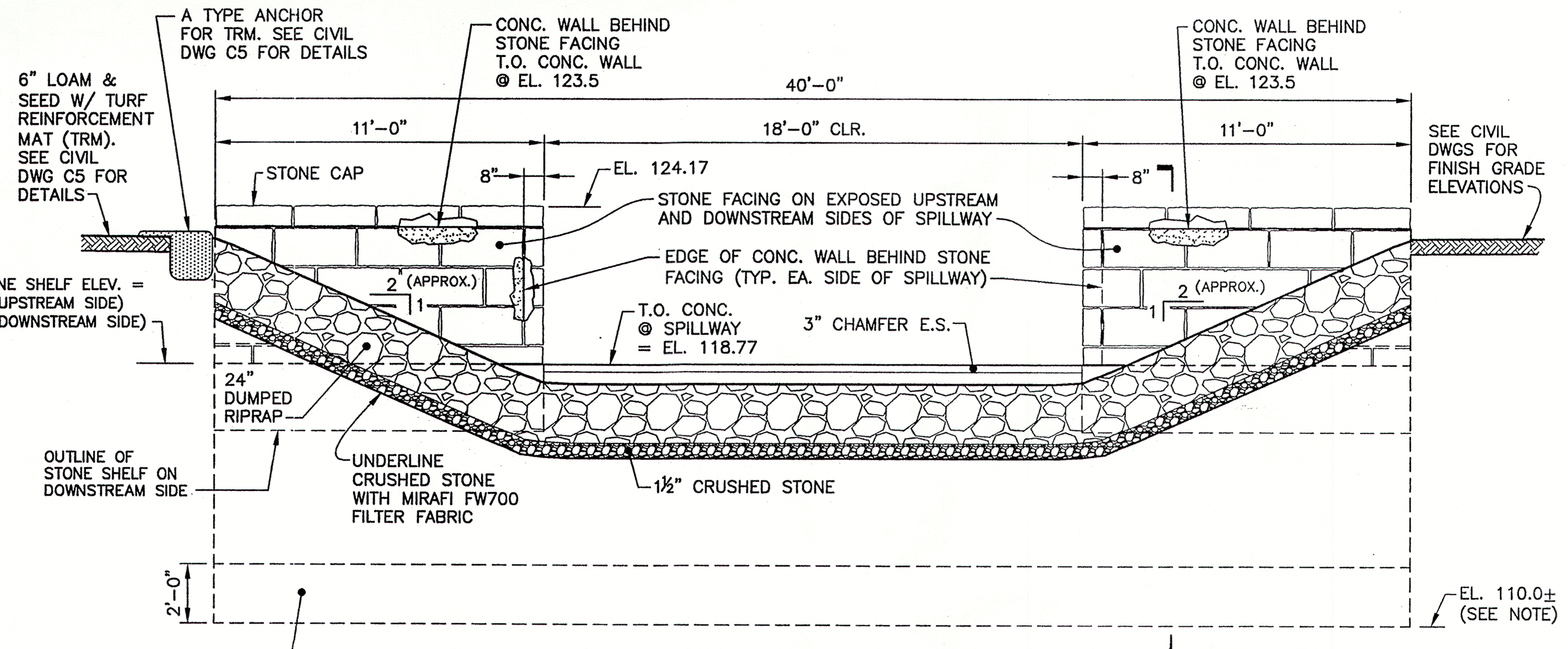
PLAN OF HORIZONTAL REINF. AT CORNERS

NOT TO SCALE



TYPICAL ELEVATION OF CONTINUOUS STEPPED WALL FOOTING

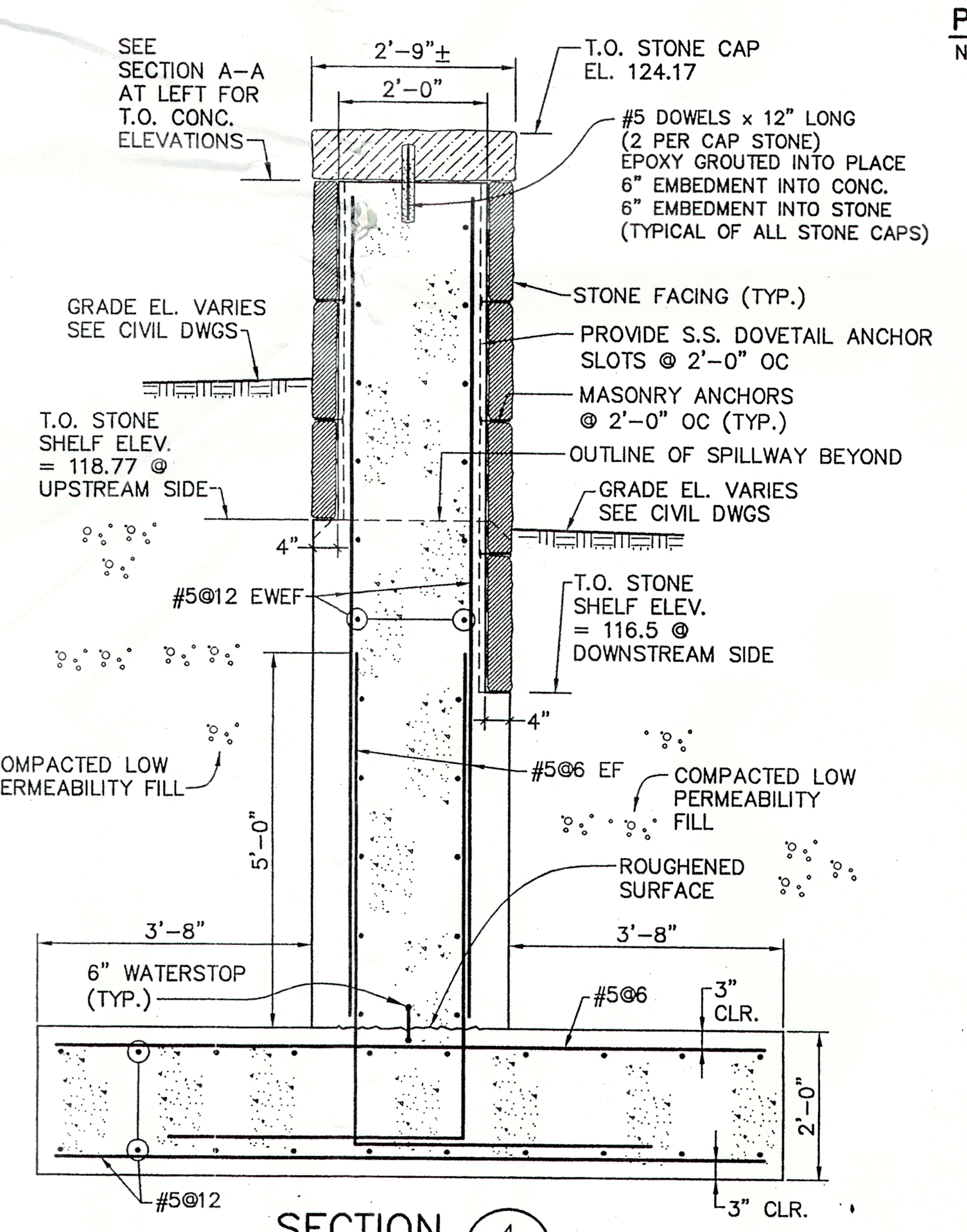
NOT TO SCALE


A TYPE ANCHOR FOR TRM. SEE CIVIL DWG C5 FOR DETAILS
6" LOAM & SEED W/ TURF REINFORCEMENT MAT (TRM). SEE CIVIL DWG C5 FOR DETAILS
CONC. WALL BEHIND STONE FACING T.O. CONC. WALL @ EL. 123.5
40'-0"
CONC. WALL BEHIND STONE FACING T.O. CONC. WALL @ EL. 123.5
11'-0"
18'-0" CLR.
11'-0"
SEE CIVIL DWGS FOR FINISH GRADE ELEVATIONS
STONE CAP
8"
EL. 124.17
8"
STONE FACING ON EXPOSED UPSTREAM AND DOWNSTREAM SIDES OF SPILLWAY
EDGE OF CONC. WALL BEHIND STONE FACING (TYP. EA. SIDE OF SPILLWAY)
2 (APPROX.)
1
2 (APPROX.)
1
T.O. STONE SHELF ELEV. = 118.77 (UPSTREAM SIDE) 116.5 (DOWNSTREAM SIDE)
T.O. CONC. @ SPILLWAY = EL. 118.77
3" CHAMFER E.S.
24" DUMPED RIPRAP
OUTLINE OF STONE SHELF ON DOWNSTREAM SIDE
UNDERLINE CRUSHED STONE WITH MIRAFI FW700 FILTER FABRIC
1½" CRUSHED STONE
2'-0"
EL. 110.0± (SEE NOTE)
FOOTING
4 S1

SECTION A-A

1/4" = 1'-0" (AUXILIARY SPILLWAY)

NOTE: IF BEDROCK IS ENCOUNTERED HIGHER THAN EL. 110 FT, BEAR FOOTING ON CLEANED, INTACT BEDROCK.


SEE SECTION A-A AT LEFT FOR T.O. CONC. ELEVATIONS
2'-9"±
2'-0"
T.O. STONE CAP EL. 124.17
#5 DOWELS x 12" LONG (2 PER CAP STONE) EPOXY GROUTED INTO PLACE 6" EMBEDMENT INTO CONC. 6" EMBEDMENT INTO STONE (TYPICAL OF ALL STONE CAPS)
GRADE EL. VARIES SEE CIVIL DWGS
STONE FACING (TYP.)
PROVIDE S.S. DOVETAIL ANCHOR SLOTS @ 2'-0" OC
MASONRY ANCHORS @ 2'-0" OC (TYP.)
OUTLINE OF SPILLWAY BEYOND
T.O. STONE SHELF ELEV. = 118.77 @ UPSTREAM SIDE
GRADE EL. VARIES SEE CIVIL DWGS
4"
#5@12 EWEF
T.O. STONE SHELF ELEV. = 116.5 @ DOWNSTREAM SIDE
4"
#5@6 EF
COMPACTED LOW PERMEABILITY FILL
COMPACTED LOW PERMEABILITY FILL
5'-0"
ROUGHENED SURFACE
3'-8"
3'-8"
6" WATERSTOP (TYP.)
#5@6
3" CLR.
2'-0"
#5@12
3" CLR.

SECTION 4/S1

1/2" = 1'-0"

SECTION AT AUXILIARY SPILLWAY

GENERAL NOTES

FOUNDATIONS

1. NO CONCRETE SHALL BE PLACED IN WATER OR ON FROZEN GROUND.
2. IN GENERAL, EXTERIOR CONSTRUCTION SHALL BE CARRIED DOWN A MINIMUM OF 4'-0" BELOW FINISHED EXTERIOR GRADE.
3. ALL FOUNDATIONS SHALL BEAR ON UNDISTURBED SOIL WITH A BEARING CAPACITY OF NOT LESS THAN 2 TONS PER SQUARE FOOT.
4. ALL FINISHED EXCAVATIONS SHALL BE INSPECTED AND APPROVED BY THE ENGINEER OR HIS DESIGNEE BEFORE ANY CONCRETE IS PLACED.
5. ALL BACKFILL UNDER OR ADJACENT TO ANY PORTION OF THE STRUCTURES SHALL BE COMPACTED IN 12" LIFTS. SEE SPECIFICATIONS.
6. IF BEDROCK IS ENCOUNTERED HIGHER THAN EL. 110 FT, BEAR FOOTING ON CLEANED, INTACT BEDROCK.
7. PROVIDE AT LEAST 4 FEET OF FROST PROTECTION / COVER FROM THE BOTTOM OF FOOTING WHEN BEARING ON SOIL OR 2.5 FEET WHEN BEARING ON BEDROCK, WHERE BEDROCK IS LESS THAN 2.5 FEET FROM FINAL GRADE. DOWEL WALL FOOTINGS INTO BEDROCK.

CONCRETE

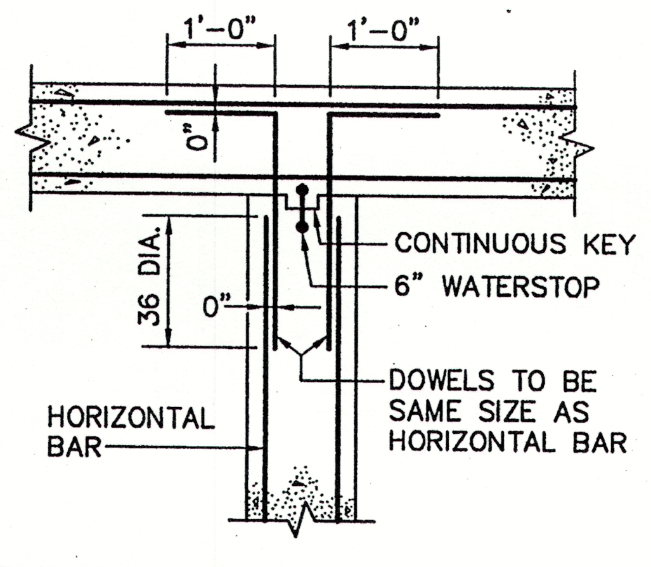
1. ALL CONCRETE WORK SHALL CONFORM TO THE REQUIREMENTS OF THE SPECIFICATIONS, THE LATEST EDITION OF THE ACI BUILDING CODE (ACI 318) AND ACI 301, SPECIFICATIONS FOR STRUCTURAL CONCRETE FOR BUILDINGS, AND TO THE MASSACHUSETTS BUILDING CODE. IN CASE OF CONFLICT, THE MORE STRINGENT REQUIREMENTS SHALL GOVERN.
2. ALL CONCRETE SHALL BE READY-MIXED IN ACCORDANCE WITH ASTM C94.
3. AT LEAST 48 HOURS SHALL ELAPSE BEFORE DEPOSITING OF NEW CONCRETE AGAINST PREVIOUSLY PLACED CONCRETE.
4. ALL CONCRETE SHALL ATTAIN 4,000 PSI MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS.

REINFORCING

1. ALL REINFORCING BAR DETAILS SHALL CONFORM TO THE LATEST ACI CODE AND DETAILING MANUAL, EXCEPT AS OTHERWISE SPECIFIED.
2. ALL REINFORCING BARS SHALL CONFORM TO ASTM A615 GRADE 60 EXCEPT TIES AND STIRRUPS GRADE 40. ALL WELDED WIRE FABRIC SHALL CONFORM TO ASTM A185 AND SHALL BE PROVIDED IN FLAT SHEETS. LAPS SHALL BE STAGGERED AND SHALL BE 1-1/2 FULL MESH MINIMUM.
3. SCHEDULE WITH THE SHOP DRAWINGS ALL NECESSARY ACCESSORIES TO HOLD REINFORCING SECURELY IN POSITION. MINIMUM REQUIREMENTS SHALL BE: HIGH CHAIRS – 4 FEET ON CENTERS; SLAB BOLSTERS – 3'-6" ON CENTERS; SUPPORT BARS FOR HIGH CHAIRS – #5.
4. ALL BARS, EXCEPT AS OTHERWISE NOTED, SHALL BE CONTINUOUS AND SHALL BE RUN CONTINUOUSLY AROUND CORNERS, LAPPED AT NECESSARY SPLICES, AND HOOKED AT DISCONTINUOUS ENDS. LAPS SHALL BE 36-BAR DIAMETER MINIMUM, UNLESS OTHERWISE NOTED.
5. THE CONCRETE PROTECTIVE COVERING FOR MAIN REINFORCEMENT SHALL BE, UNLESS SHOWN OTHERWISE:
   - A. FOOTING BOTTOMS...3 INCHES.
   - B. FORMED SURFACES IN DIRECT CONTACT WITH SOIL OR EXPOSED TO THE WEATHER... 2 INCHES
6. ALL CONCRETE, UNLESS SPECIFICALLY NOTED TO BE PLAIN CONCRETE, SHALL BE REINFORCED.
7. ALL REINFORCING SHALL BE INSPECTED AND APPROVED BY THE ENGINEER OR HIS DESIGNEE BEFORE CONCRETE IS PLACED.

MISCELLANEOUS

1. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AT THE JOB SITE.
2. DO NOT SCALE FROM DRAWINGS.



PLAN OF HORIZONTAL REINFORCING AT INTERSECTIONS

NOT TO SCALE

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GERALD VEZINA
No. 29384
Nov 30, 2006

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1	EDITS TO NOTES	VAO	11/06

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DESIGNED BY: C. HAKER
REVIEWED BY: G.R.V./P.B.
OPERATOR: M.D. BECKER
DATE: JULY 2006

WARNERS POND DAM
REHABILITATION
TOWN OF CONCORD, MA

SPILLWAY STRUCTURAL
SECTIONS AND DETAILS

PROJECT NO.
18834.00

DRAWING
S1

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