



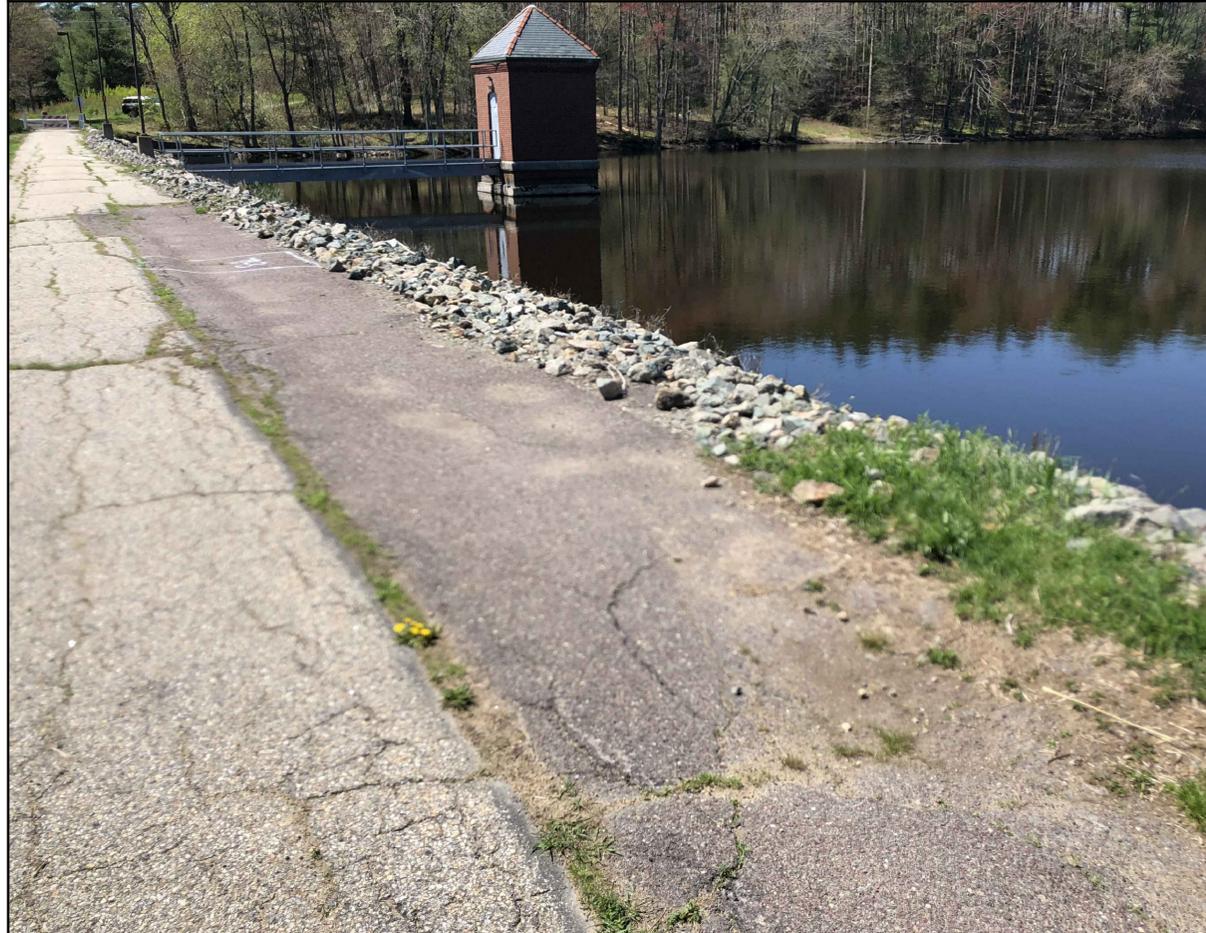
# DOW BROOK RESERVOIR DAM REPAIRS

IPSWICH, MASSACHUSETTS

21 SEPTEMBER 2018  
FOR TOWN OF IPSWICH  
BID SET

**HALEY  
ALDRICH**

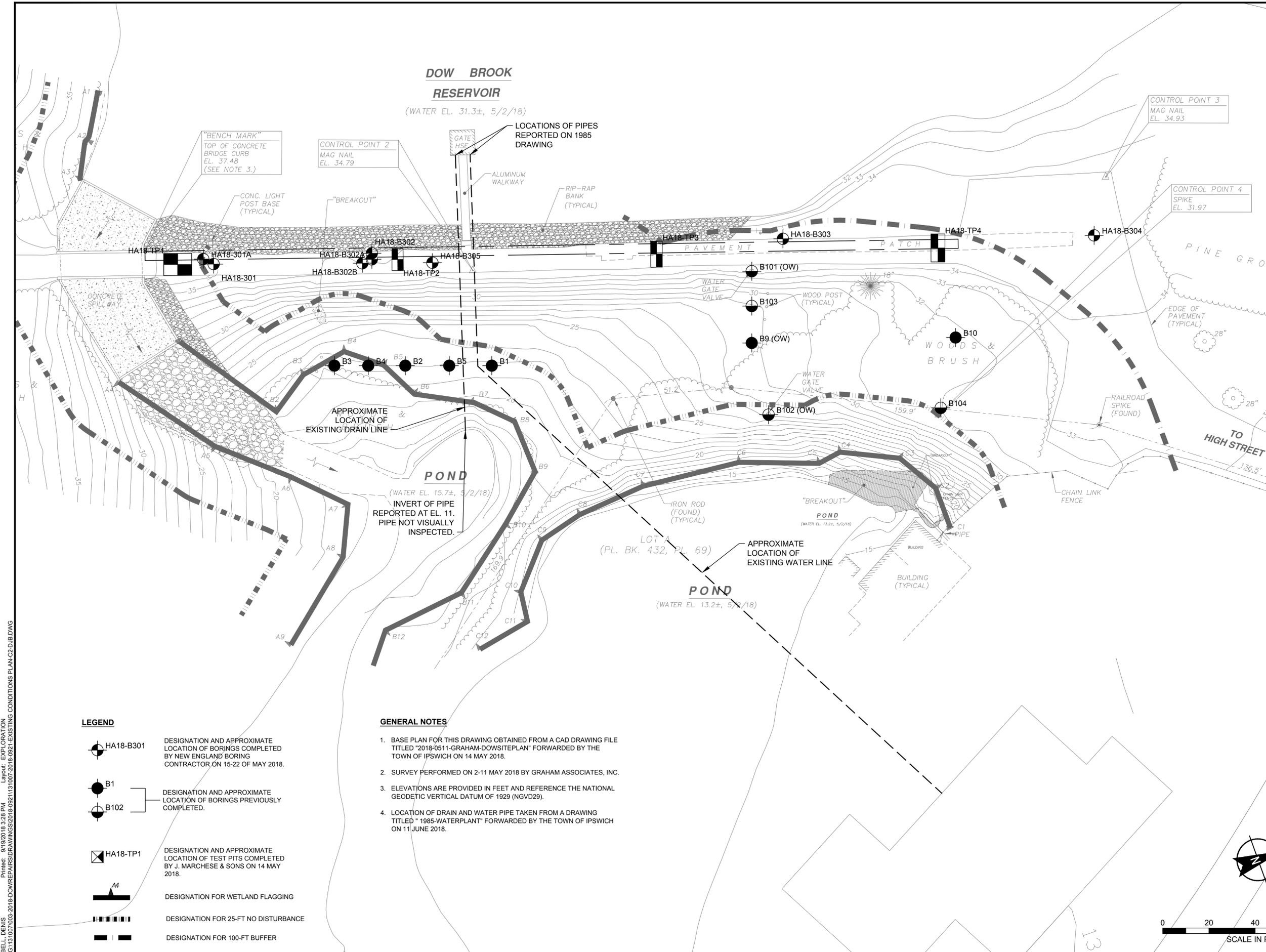
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SHEET NO.	DRAWING NO.	SHEET TITLE
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2	C-2	EXISTING CONDITIONS PLAN
3	C-3	EROSION CONTROL PLAN
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**DOW BROOK  
RESERVOIR**

(WATER EL. 31.3±, 5/2/18)



**LEGEND**

- HA18-B301 DESIGNATION AND APPROXIMATE LOCATION OF BORINGS COMPLETED BY NEW ENGLAND BORING CONTRACTOR ON 15-22 OF MAY 2018.
- B1, B102 DESIGNATION AND APPROXIMATE LOCATION OF BORINGS PREVIOUSLY COMPLETED.
- HA18-TP1 DESIGNATION AND APPROXIMATE LOCATION OF TEST PITS COMPLETED BY J. MARCHESE & SONS ON 14 MAY 2018.
- A4 DESIGNATION FOR WETLAND FLAGGING
- DESIGNATION FOR 25-FT NO DISTURBANCE
- DESIGNATION FOR 100-FT BUFFER

**GENERAL NOTES**

1. BASE PLAN FOR THIS DRAWING OBTAINED FROM A CAD DRAWING FILE TITLED "2018-0511-GRAHAM-DOWSITEPLAN" FORWARDED BY THE TOWN OF IPSWICH ON 14 MAY 2018.
2. SURVEY PERFORMED ON 2-11 MAY 2018 BY GRAHAM ASSOCIATES, INC.
3. ELEVATIONS ARE PROVIDED IN FEET AND REFERENCE THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
4. LOCATION OF DRAIN AND WATER PIPE TAKEN FROM A DRAWING TITLED "1985-WATERPLANT" FORWARDED BY THE TOWN OF IPSWICH ON 11 JUNE 2018.

Project No.:	131007-003
Scale:	AS SHOWN
Date:	15 JUNE 2018
Drawn By:	JMV
Designed By:	DJB
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Approved By:	
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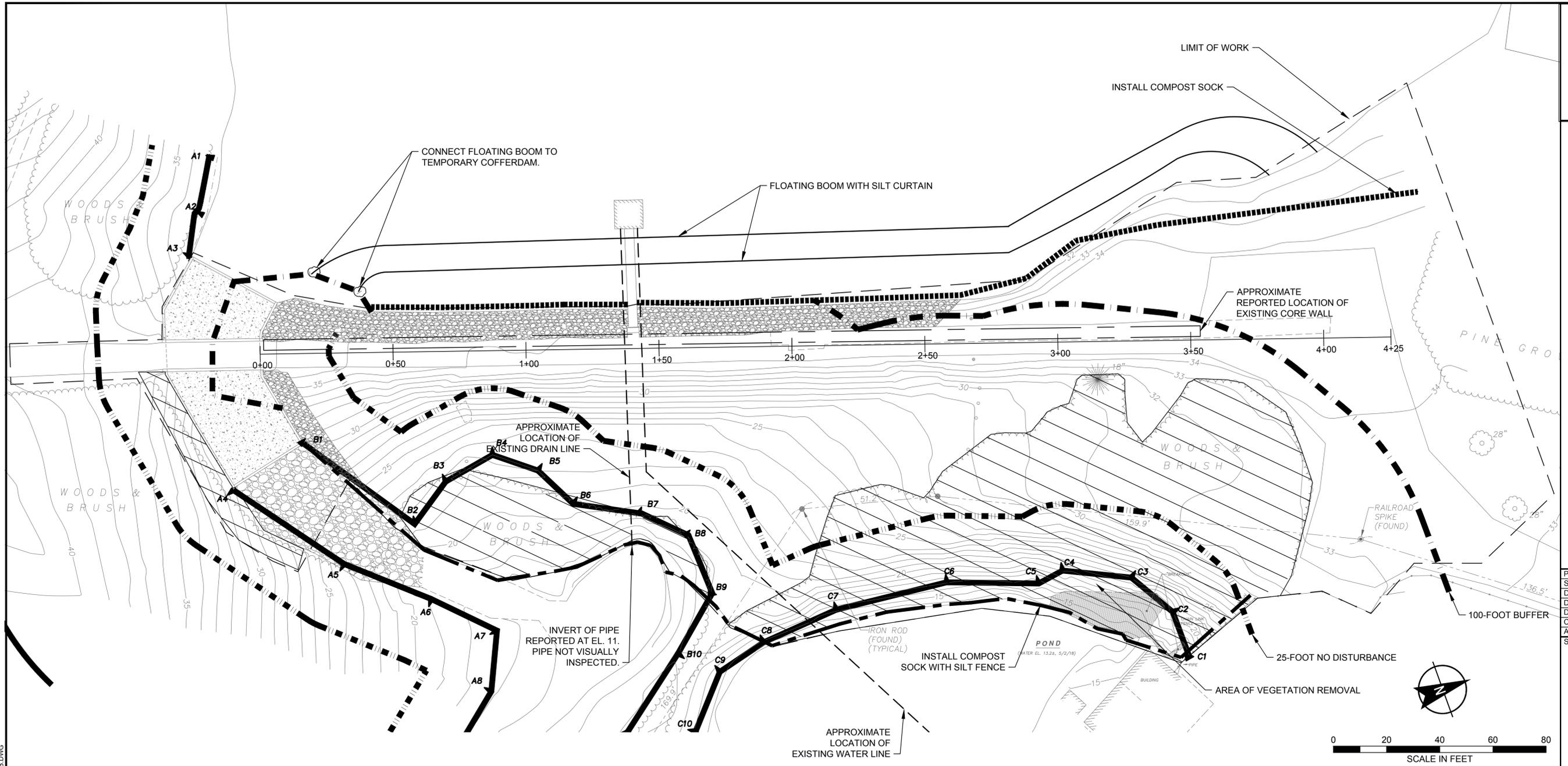
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3	REVIEW	DJB	8/31/2018
2	REVIEW	DJB	8/18/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018
Rev.	Description	By	Date

DOW BROOK RESERVOIR  
DAM REPAIRS

EXISTING  
CONDITIONS PLAN

**C-2**

Sheet: 2 of 18



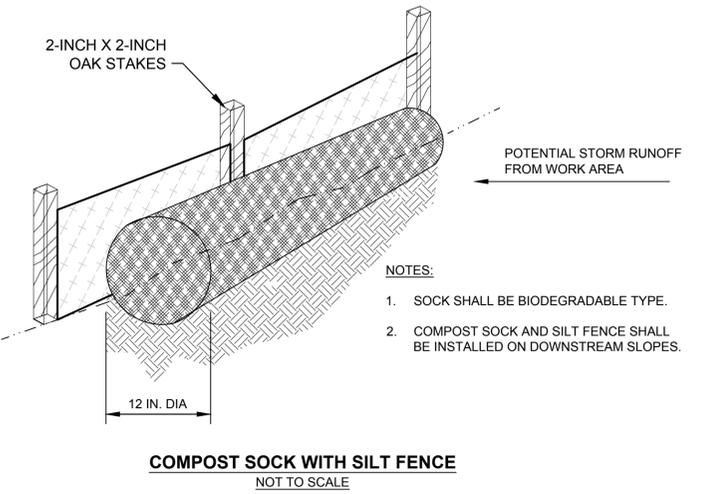
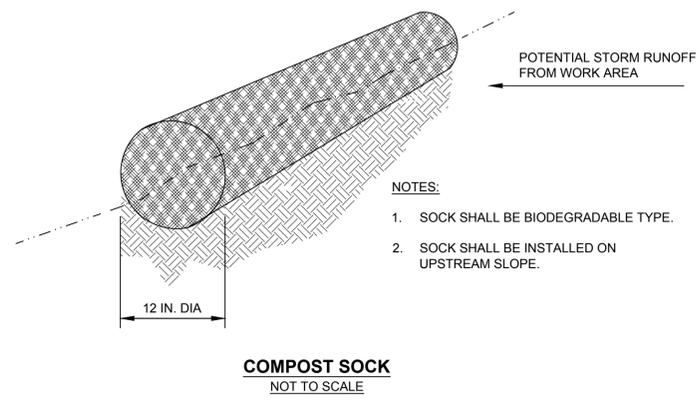
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- LEGEND**
- COMPOST SOCKS
  - COMPOST SOCK WITH SILT FENCE
  - — — — — FLOATING BOOM
  - ▲ WETLAND FLAGGING

- EROSION CONTROL NOTES**
1. THE CONTRACTOR SHALL PROVIDE EROSION CONTROL MEASURES AS INDICATED ON THE DRAWINGS AND AS SPECIFIED IN SPECIFICATION SECTION 02200.
  2. THE CONTRACTOR SHALL INSPECT EROSION CONTROL MEASURES DAILY, AND DURING AND AFTER EVERY RAIN EVENT. ANY NECESSARY REPLACEMENT OR REPAIR SHALL BE PERFORMED PROMPTLY BY THE CONTRACTOR.
  3. THE CONTRACTOR SHALL IMPLEMENT MEASURES NECESSARY TO PREVENT TRANSPORT OF EARTH, SEDIMENT, AND DEBRIS THAT MAY RESULT FROM EROSION, WIND, CONSTRUCTION, TRAFFIC, AND OTHER MEANS.
  4. STOCKPILED SOILS SHALL BE SURROUNDED BY COMPOST SOCK AND SILT FENCE AND COVERED WITH EROSION CONTROL MATTING, TEMPORARILY SEEDED AND MULCHED, OR STABILIZED BY OTHER METHODS ACCEPTABLE TO THE ENGINEER.
  5. STORAGE OF MATERIALS ON SITE SHALL BE AT LOCATIONS APPROVED BY THE ENGINEER.
  6. CONTRACTOR TO CONTACT DIG SAFE (888-DIG-SAFE) PRIOR TO CONDUCTING WORK.
  7. FLOATING BOOM WITH SILT CURTAIN SHALL BE INSTALL AT LOCATIONS SHOWN IN THE RESERVOIR. BOOM SHALL BE INSTALLED AT 15 FT AND 25 FT FROM SHORELINE. BOOM SHALL BE SECURELY ANCHORED IN PLACE WITH ANCHORS AT LEAST EVERY 50 FT. BOOMS SHALL BE SECURED TO THE TO THE DAM SUCH THAT DEBRIS FROM THE WORK CAN NOT ENTER THE RESERVOIR.
  8. CONTRACTOR SHALL FULLY COMPLY WITH ORDER OF CONDITIONS ISSUED BY IPSWICH CONSERVATION COMMISSION FOR THIS PROJECT.
  9. SEE SHEET C-5 FOR VEGETATION REMOVAL.

**NOTE**

1. SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.

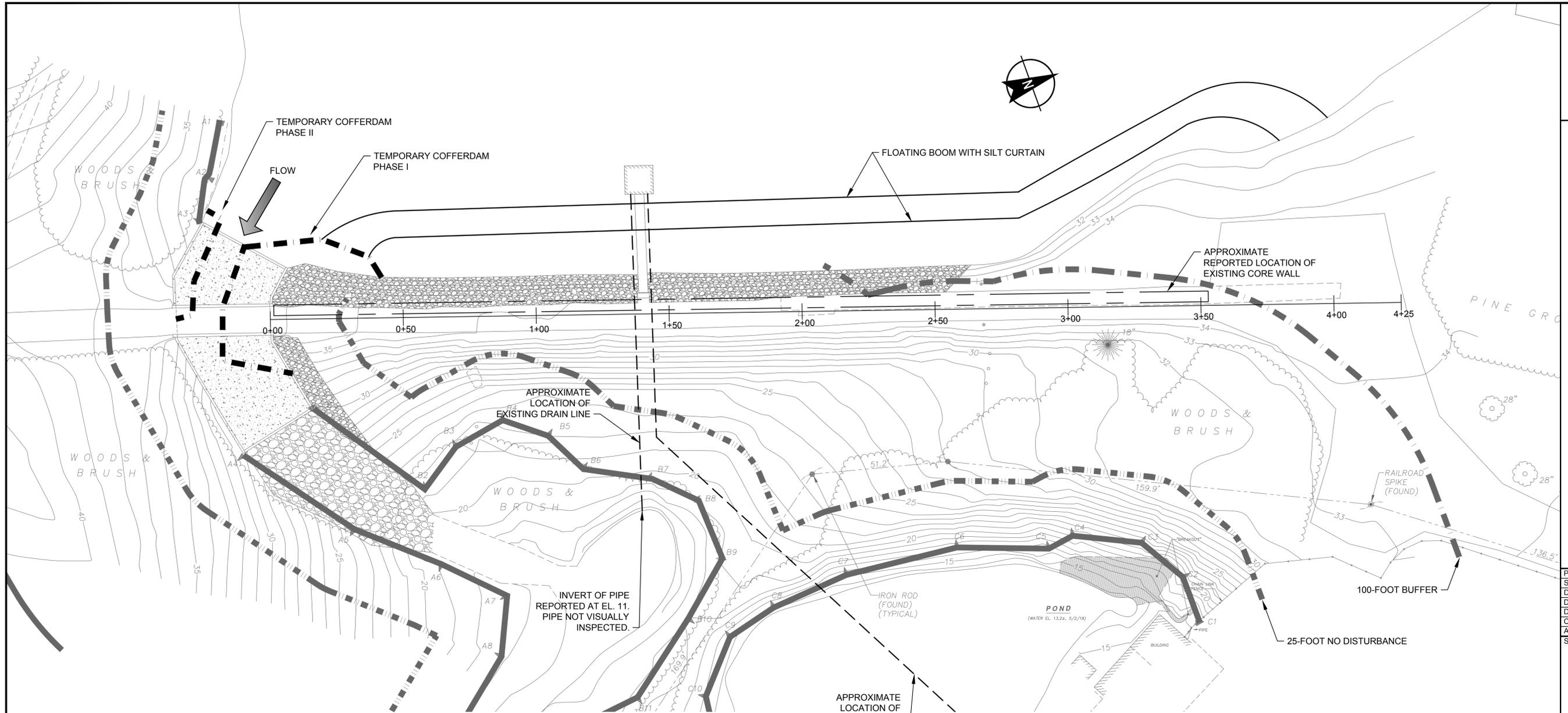


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Rev.	Description	By	Date
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4	REVIEW	DJB	9/29/2018
3	REVIEW	DJB	9/17/2018
2	WETLAND EDIT	DJB	9/14/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR DAM REPAIRS

**EROSION CONTROL PLAN**



**NOTES**

- SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
- CONTRACTOR SHALL CONSTRUCT, INSTALL, OPERATE AND MAINTAIN TEMPORARY WATERTIGHT COFFERDAM AT LOCATIONS SHOWN TO CONDUCT WORK IN THE DRY.
- COFFERDAM SHALL BE SMALL OR LARGE SANDBAGS, OR FLEXIBLE MEMBRANE TYPE COFFERDAM. COFFERDAM SHALL BE CONTRACTOR DESIGN AND BE SUFFICIENT TO MAINTAIN RESERVOIR WATER LEVELS TO EL. 35.
- TOP OF COFFERDAM SHALL BE MINIMUM EL. 35.
- MAINTAIN RESERVOIR WATER LEVEL BELOW EL. 32 DURING THE WORK.
- WATER SHALL BE DIVERTED THROUGH HALF OF THE SPILLWAY DURING THE WORK.
- MAINTAIN RESERVOIR WATER LEVEL BELOW EL. 32 DURING THE WORK. MAINTAIN RESERVOIR WATER LEVEL ABOVE EL. 28 DURING THE WORK, TO THE EXTENT POSSIBLE. THE RESERVOIR IS A PUBLIC WATER SUPPLY AND THE IPSWICH UTILITIES DEPARTMENT DRAWS FROM THE RESERVOIR WHICH WILL CAUSE THE RESERVOIR LEVEL TO FLUCTUATE. THE CONTRACTOR SHALL WORK WITH THE IPSWICH UTILITIES DEPARTMENT TO MAINTAIN RESERVOIR LEVELS ABOVE EL. 28; HOWEVER, THE RESERVOIR MAY BE DRAWN BELOW EL. 28 BY THE UTILITIES DEPARTMENT, IF NOT CAUSED BY THE CONTRACTOR'S WORK.

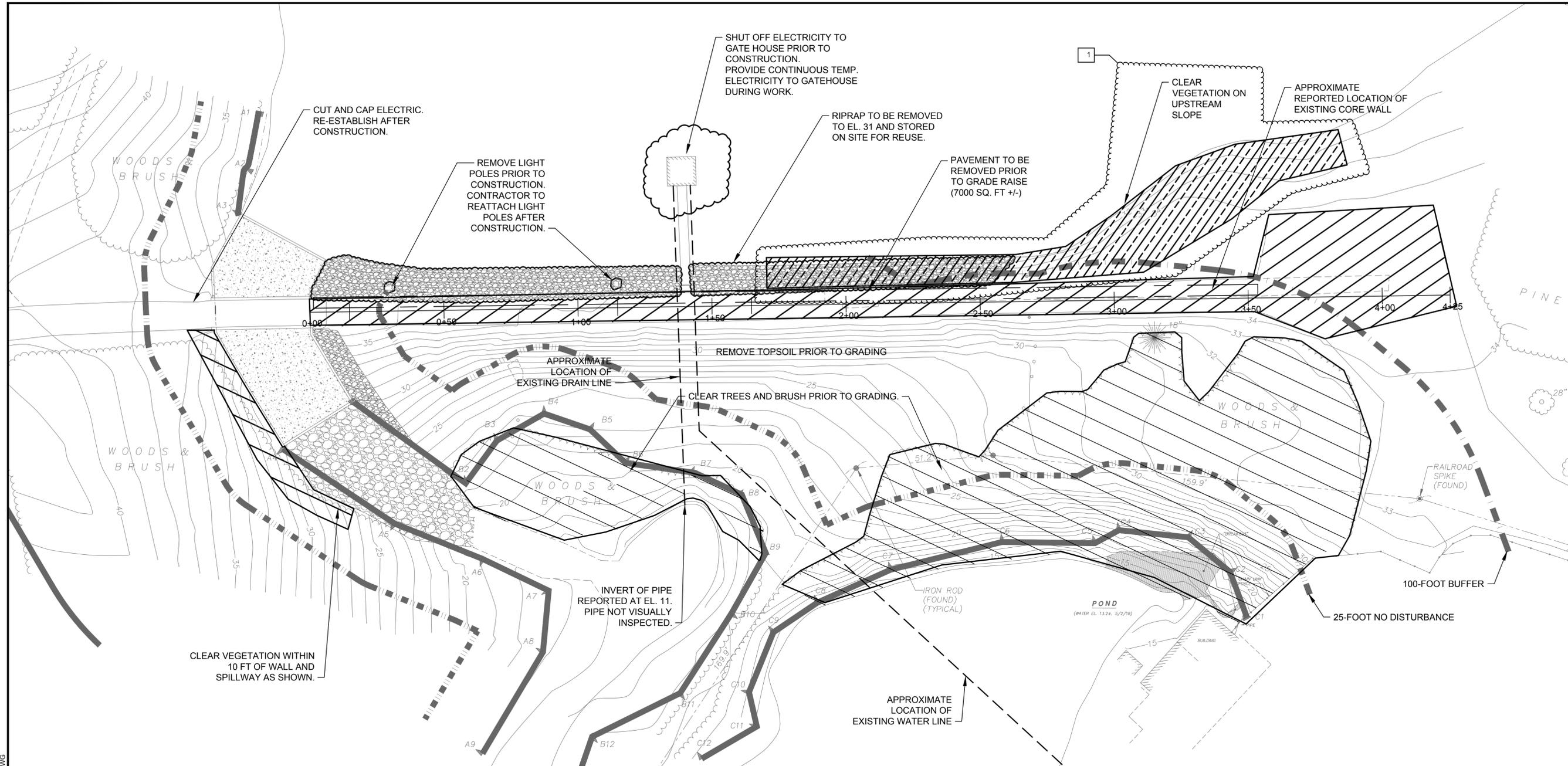
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Approved By:	
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Rev.	Description	By	Date
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3	REVIEW	DJB	8/31/2018
2	REVIEW	DJB	8/17/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR  
DAM REPAIRS

WATER CONTROL  
PLAN

**C-4**



**NOTES**

1. SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
2. REMOVE RIPRAP FROM THE UPSTREAM SLOPE TO THE LIMITS SHOWN FROM DAM CREST TO EL. 31, AND STOCKPILE ON-SITE FOR REUSE ON THE SLOPE.
3. REMOVE PAVEMENT TO THE LIMITS SHOWN. LEGALLY DISPOSE/RECYCLE PAVEMENT OFF-SITE. RECLAIMED ASPHALT (RAP) MAY BE USED AS BASE COURSE BELOW NEW PAVEMENT.
4. REMOVE LIGHT POLES AND BASES. TEMPORARILY STORE LIGHT POLES AT THE SITE FOR REUSE.
5. CUT AND CAP ELECTRIC LINE FOR LIGHT POLES AND GATEHOUSE.
6. CUT AND REMOVE VEGETATION, BRUSH AND TREES FROM THE AREAS SHOWN AND LEGALLY DISPOSE OF OFF-SITE.
7. REMOVE TOPSOIL FROM DOWNSTREAM SLOPE. STOCKPILE TOPSOIL FOR REUSE ON PROJECT. EXCAVATE MINIMUM 6 IN. THICKNESS OF MATERIAL FROM DOWNSTREAM SLOPE. EXCAVATE ADDITIONAL THICKNESS, IF NEEDED, TO REMOVE ALL TOPSOIL FROM DOWNSTREAM SLOPE PRIOR TO FILLING.
8. CONTRACTOR TO PROVIDE TEMPORARY POWER TO GATE HOUSE. GATE HOUSE TO REMAIN OPERATIONAL DURING CONSTRUCTION

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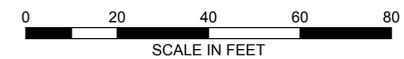
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2	REVIEW	DJB	8/17/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

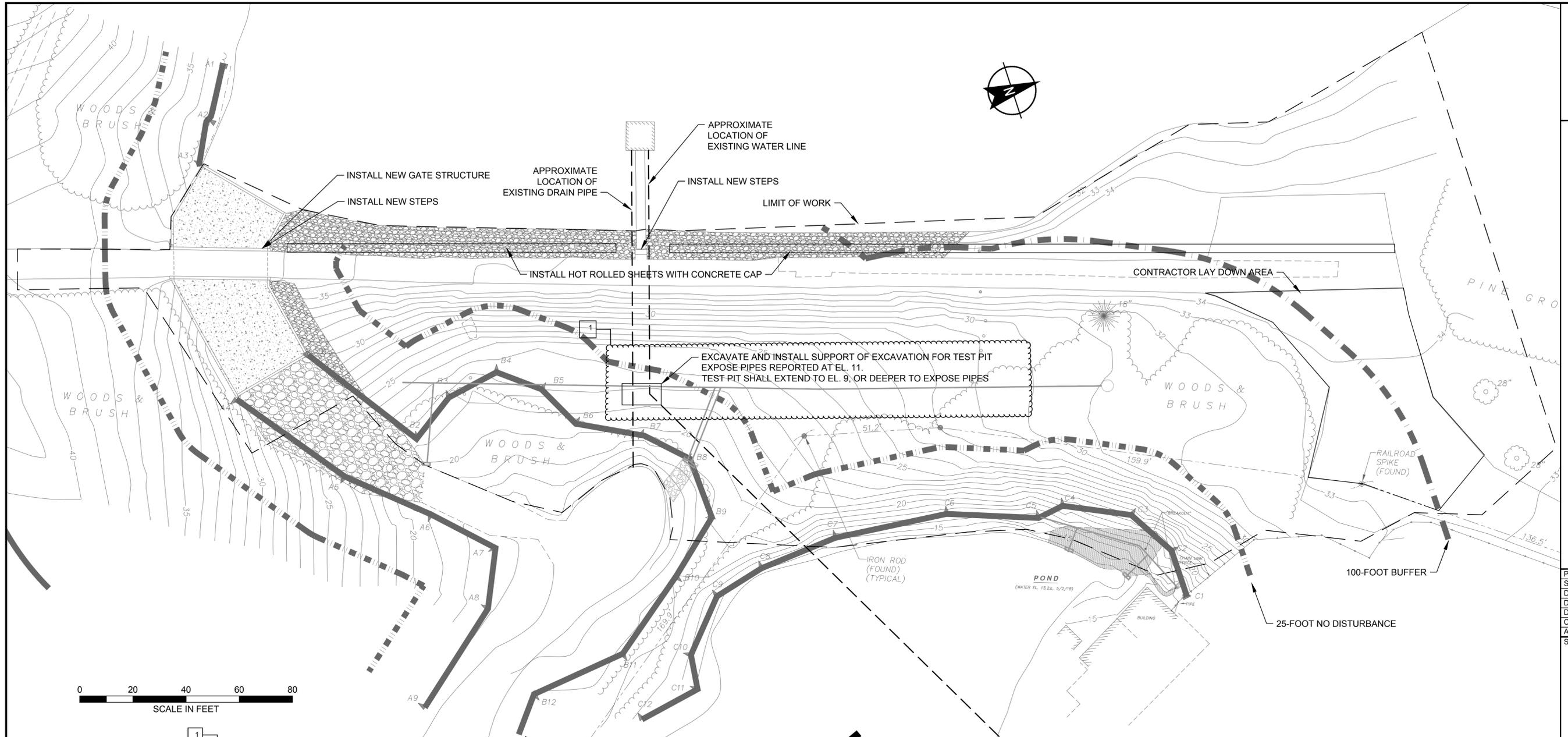
DOW BROOK RESERVOIR  
DAM REPAIRS

DEMOLITION PLAN

**C-5**

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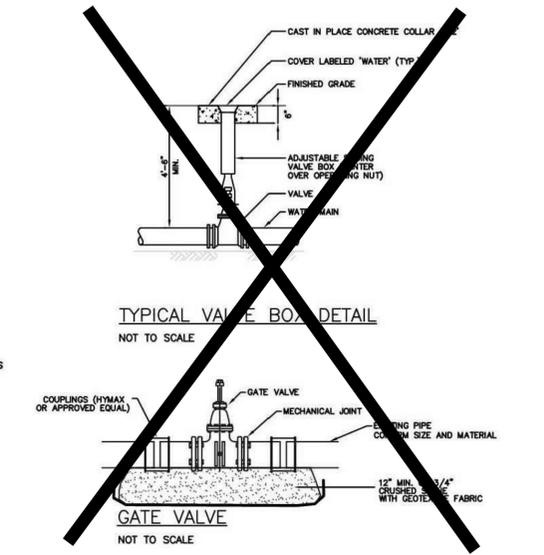
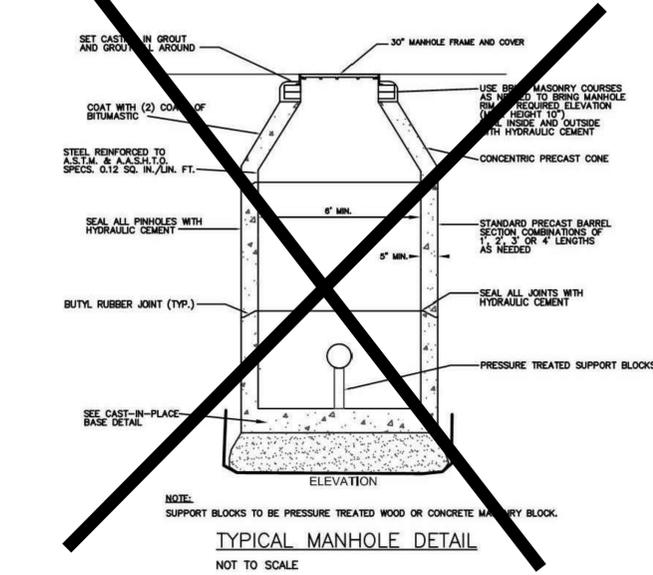
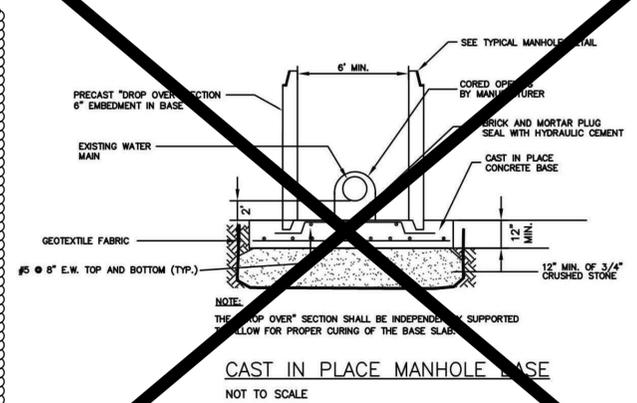




- NOTES**
- SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
  - THE WORK INCLUDES THE FOLLOWING ITEMS:
    - INSTALL NEW GATE STRUCTURE AT SPILLWAY
    - INSTALL HOT ROLLED SHEETS WITH CONCRETE CAP
    - INSTALL NEW DOGHOUSE MANHOLE AND NEW GATE VALVE
    - INSTALL TOE DRAIN
    - FILL DOWNSTREAM SLOPE
    - INSTALL RIPRAP ON UPSTREAM SLOPE
    - REPAVE CREST AND DISTURBED AREAS
    - PLACE TOPSOIL AND HYDROSEED
    - INSTALL NEW LIGHT POLE BASES AND RE-INSTALL LIGHT POLES AND INSTALL ELECTRIC LINES TO LIGHTS AND GATE HOUSE
    - INSTALL STEPS TO GATEHOUSE

**TEST PIT EXCAVATION**

- CONTRACTOR TO EXCAVATE TEST PIT TO EL. 9 TO LOCATE AND EXPOSE RAW WATER PIPE AND DRAIN PIPE. COORDINATE WITH IPSWICH WATER DEPARTMENT TO CONFIRM RAW WATER PIPE ELEVATION, OUTSIDE DIAMETER, AND PIPE/BEND DEFLECTION ANGLE. DEWATER AS NEEDED TO COMPLETE WORK IN THE DRY. CONTRACTOR TO PROVIDE ALL OSHA COMPLIANT SHORING NEEDED FOR PERSONNEL TO SAFELY ENTER THE TEST PIT.
- CONTRACTOR SHALL COMPLETELY DEWATER TEST PIT.
- DO NOT DAMAGE PIPES OR DISRUPT PUBLIC WATER SUPPLY. ALLOW TEST PIT TO BE OPEN MINIMUM 4 HOURS.
- CONTRACTOR TO EXPOSE PIPES ON ALL SIDES TO ALLOW FOR INSPECTION AND MEASUREMENT.
- CONTRACTOR TO COORDINATE WITH TOWN TO ALLOW TOWN ENGINEER TO INSPECT, MEASURE AND DOCUMENT PIPES.
- BACKFILL TEST PIT WITH EXCAVATED SOIL. DO NOT COMPACT WITHIN 3 FT OF PIPES.
- SEE SPECIFICATION SECTION 02200 EARTHWORK FOR ADDITIONAL REQUIREMENTS.



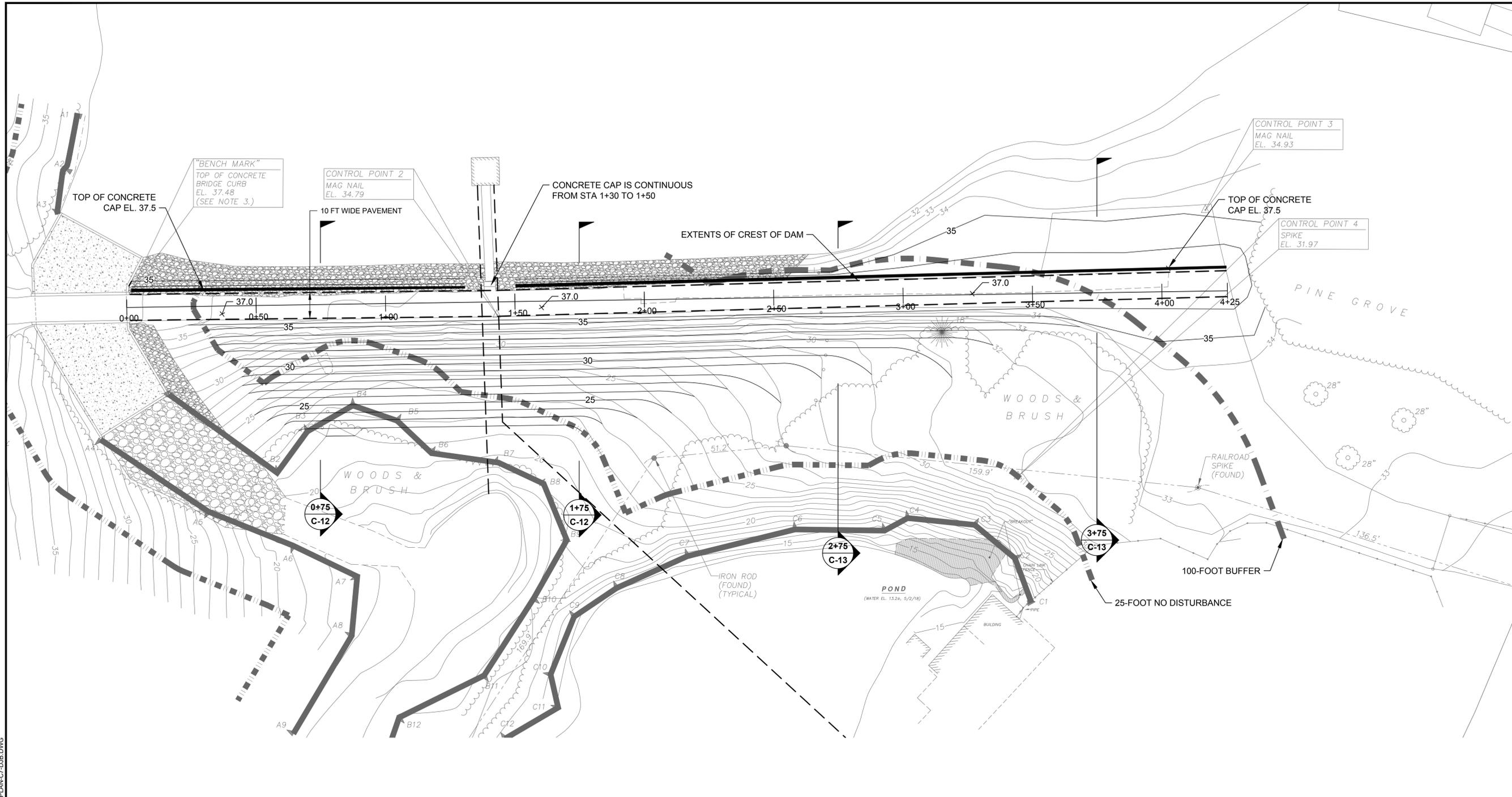
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4	REVIEW	DJB	9/12/2018
3	REVIEW	DJB	8/31/2018
2	REVIEW	DJB	8/17/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR DAM REPAIRS

LAYOUT PLAN

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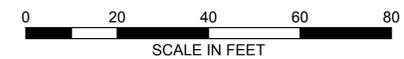


**NOTES**

- SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
- BLEND GRADING TO MATCH EXISTING.
- CONTRACTOR TO PLACE TOPSOIL AND HYDROSEED ALL DISTURBED AREAS. CONTRACTOR SHALL USE NEW ENGLAND WETLAND PLANTS LOGGING ROAD SEED MIX OR APPROVED EQUAL OUTSIDE OF WETLAND FLAGGING. REFER TO SPECIFICATION SECTION 32 92 19 FOR ADDITIONAL INFORMATION.
- CONTRACTOR SHALL HAND SEED INSIDE OF WETLAND FLAGGING USING NEW ENGLAND WETMIX OR APPROVED EQUAL. REFER TO SPECIFICATION SECTION 32 92 19 FOR ADDITIONAL INFORMATION.

**LEGEND**

- 25— DESIGNATION FOR PROPOSED GRADING.
- 25— DESIGNATION FOR EXISTING GRADING.
- A4 WETLAND FLAGGING



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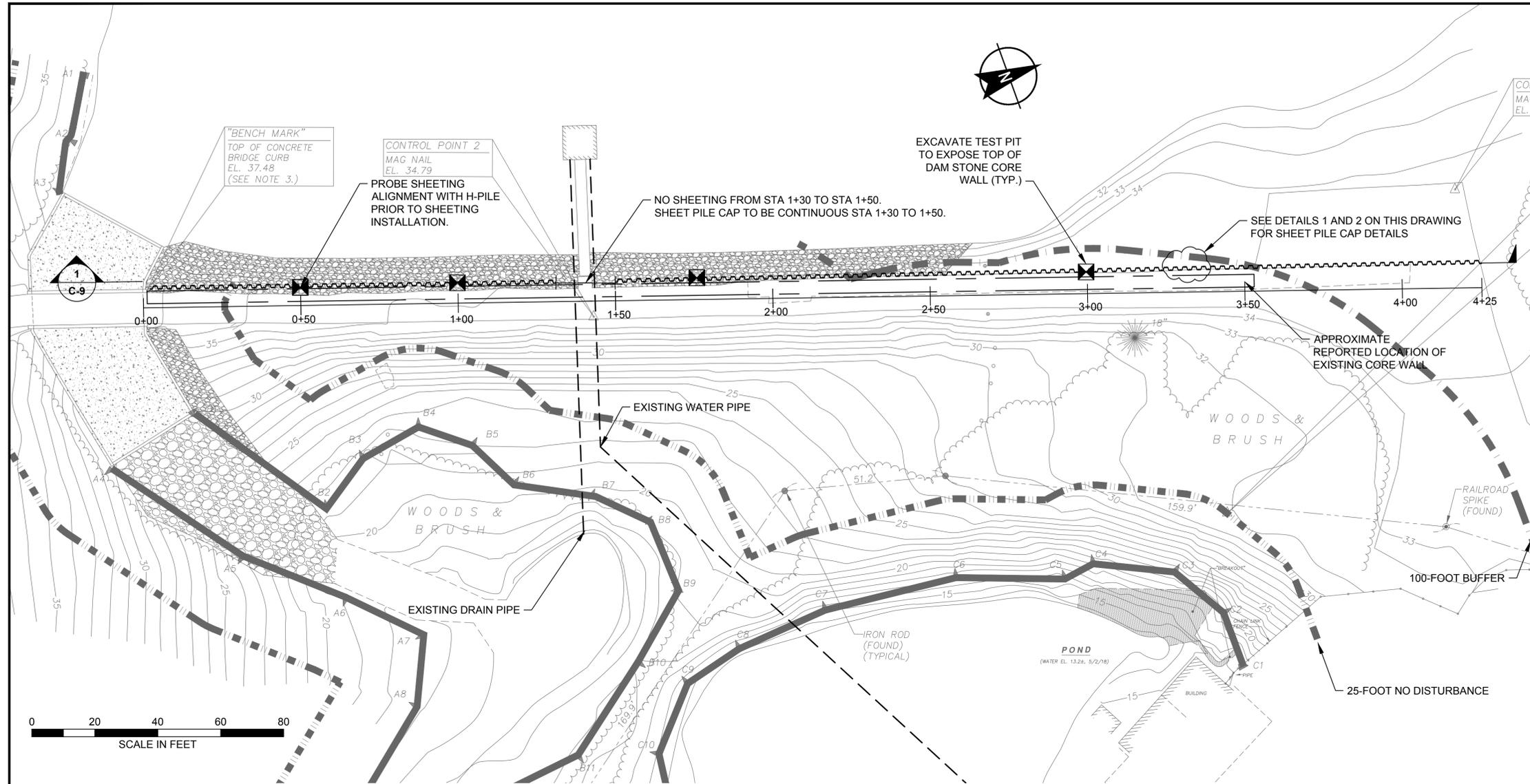
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2	REVIEW	DJB	8/17/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR  
DAM REPAIRS

GRADING PLAN

**C-7**

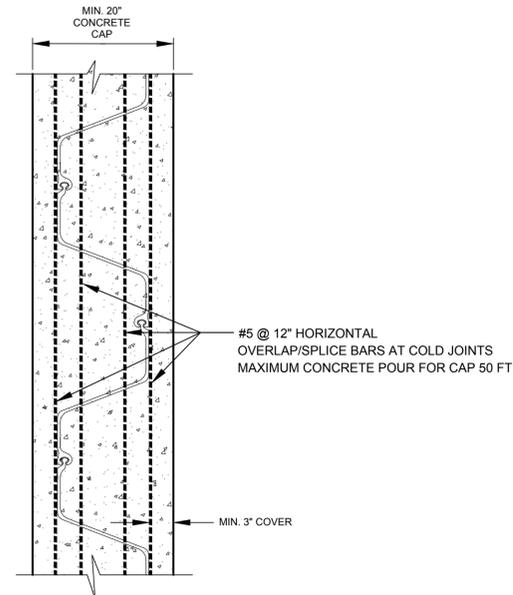
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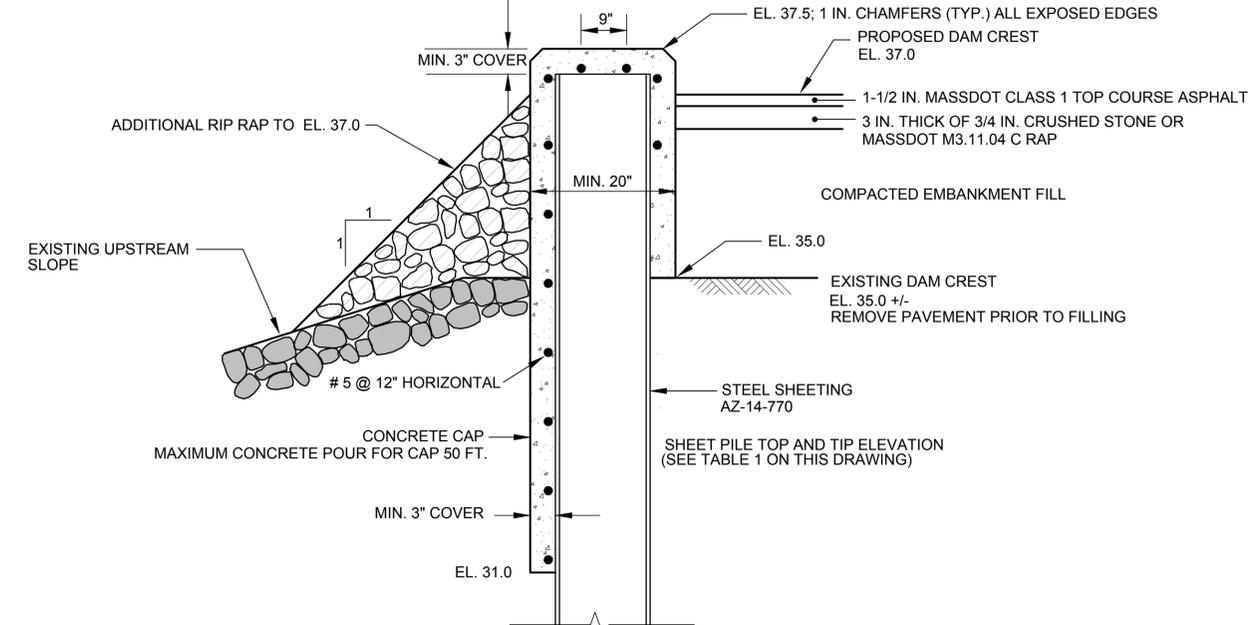
**NOTES**

- SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
- CONTRACTOR SHALL EXPOSE TOP OF EXISTING DAM STONE CORE WALL ALONG SHEETING ALIGNMENT AT LOCATIONS SHOWN.
- SHEETING SHALL BE INSTALLED A CLEAR DISTANCE OF 12 IN. UPSTREAM FROM EXISTING CORE WALL.
- CONTRACTOR SHALL PROBE SHEETING ALIGNMENT WITH H-PILE PRIOR TO INSTALLING SHEETING. PROBES SHALL BE AT MAXIMUM 50 FT INTERVALS ALONG SHEETING ALIGNMENT. PROBES SHALL EXTEND A MINIMUM 5 FT DEEPER THAN SHEETING DESIGN TIP ELEVATION.
- CONTRACTOR TO EXPOSE EXISTING BRIDGE ABUTMENT FOOTING AND INSTALL SHEETING ADJACENT TO FOOTING.
- EXISTING PIPES EXTEND FROM THE GATEHOUSE, THROUGH THE DAM. SHEETING SHALL NOT BE INSTALLED IN THE AREA SHOWN TO AVOID THE EXISTING WATER PIPES.
- MAXIMUM LENGTH OF CONCRETE POUR FOR CAP SHALL BE 50 FT.

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**1**  
C-9  
**SHEET PILE CAP - PLAN VIEW**  
SCALE: NTS



**2**  
C-9  
**SHEET PILE CAP - SECTION VIEW**  
SCALE: NTS

**TABLE 1**  
**STEEL SHEET PILE TOP AND TIP ELEVATIONS**

STATION		ELEVATION	
FROM	TO	TOP	TIP (SEE NOTE)
0+00	1+30	37.25	3.0
1+30	1+50	NO SHEETING	
1+50	2+00	37.25	3.0
2+00	4+25	37.25	8.0

**NOTE:**  
TIP OF SHEET PILE SHALL BE AT THE INDICATED ELEVATION OR LOWER. SHEETING TIP ELEVATION SUBJECT TO ADJUSTMENT BASED ON CONDITIONS ENCOUNTERED DURING CONSTRUCTION.

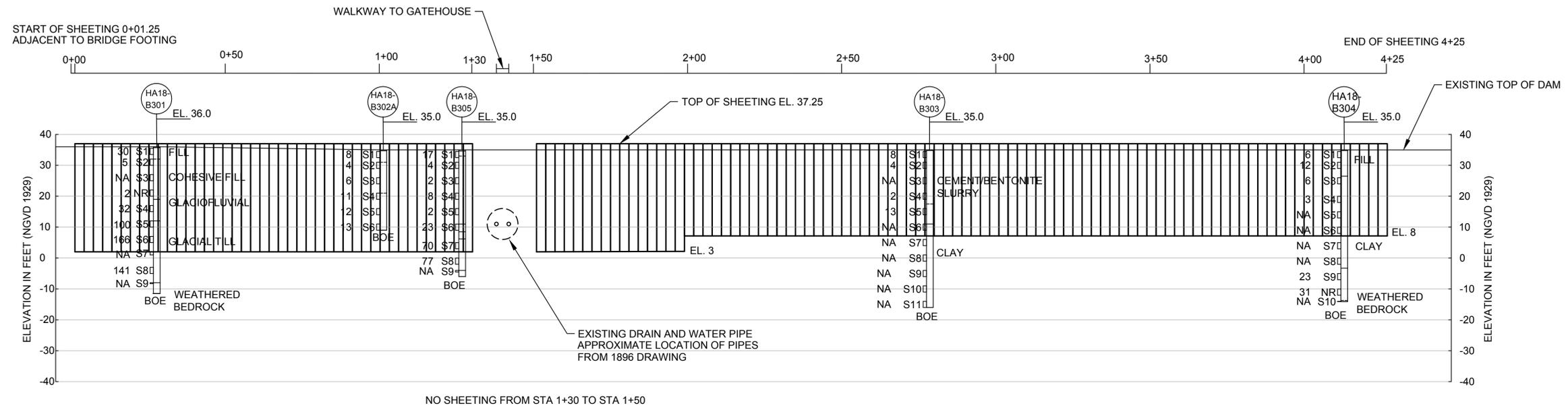
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1	PERMIT	DJB	7/17/2018
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DOW BROOK RESERVOIR  
DAM REPAIRS

**SHEET PILE PLAN  
AND DETAILS**

**C-8**

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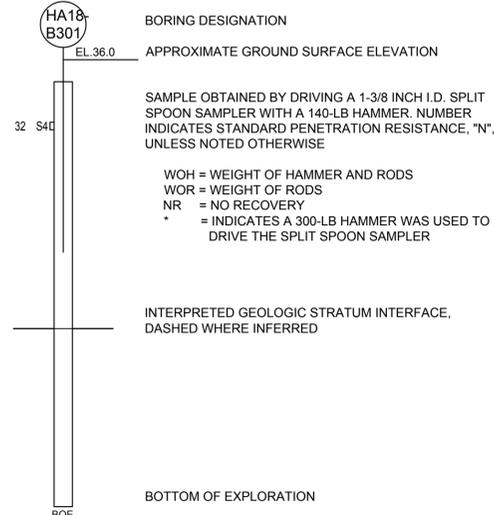
**KEY PLAN**  
NOT TO SCALE

Project No.:	131007-003
Scale:	AS SHOWN
Date:	8 JUNE 2018
Drawn By:	JMV
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**NOTES**

- SEE DRAWING NO. C-2 FOR ADDITIONAL LEGEND AND NOTES.
- SHEETING TO BE AZ-14-770.

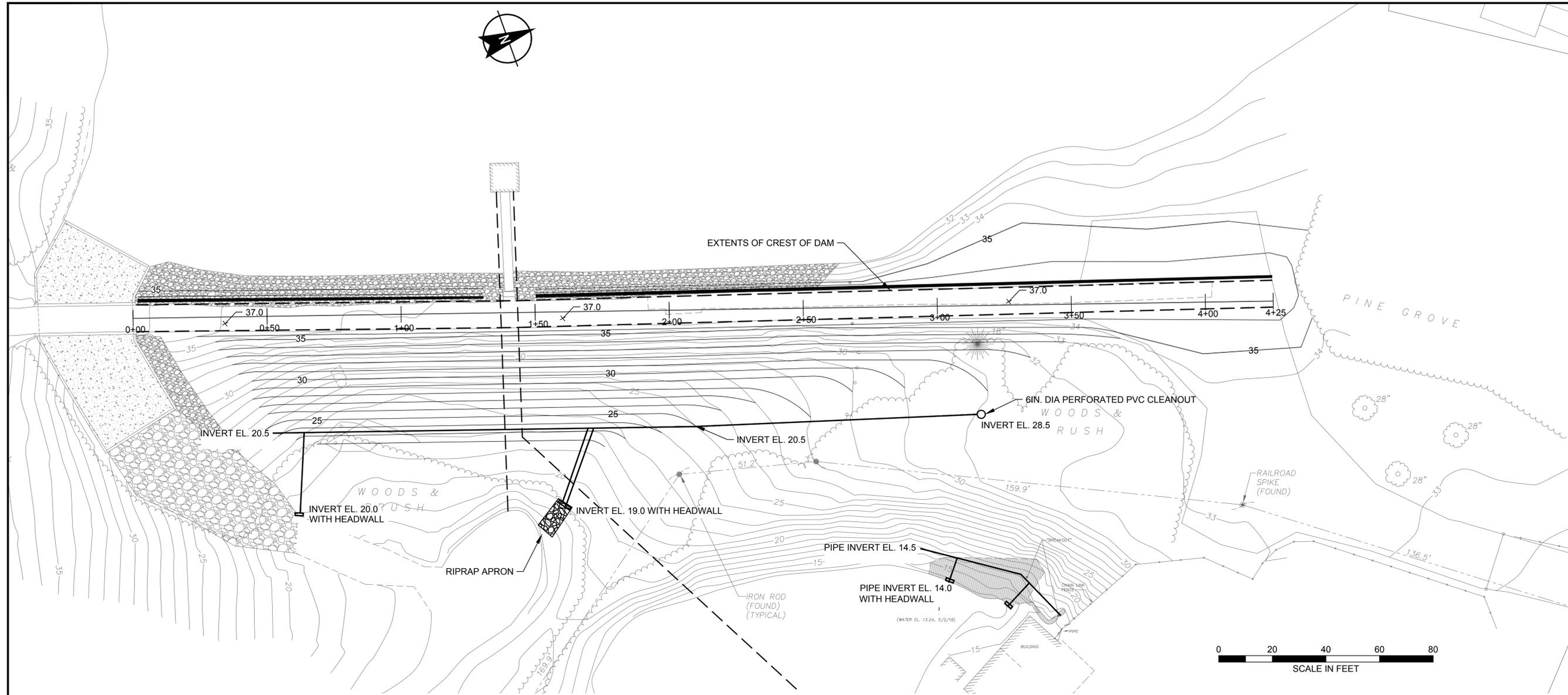
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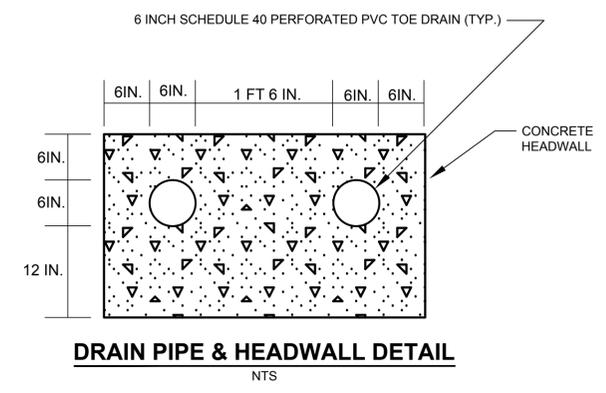
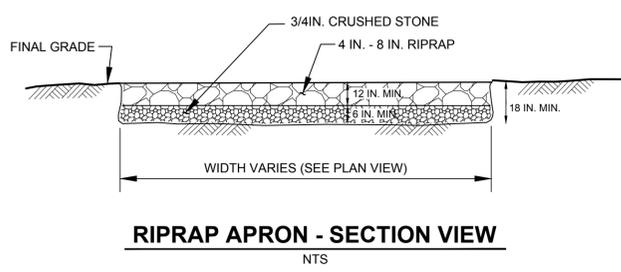
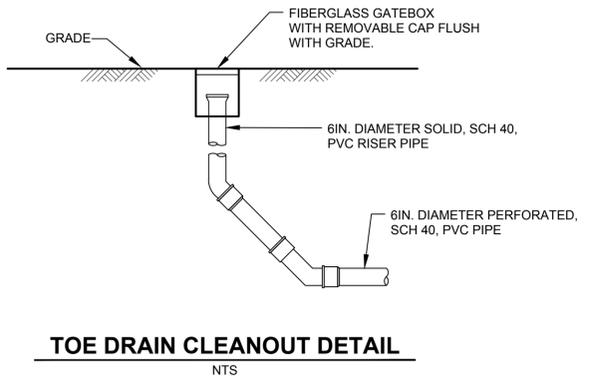
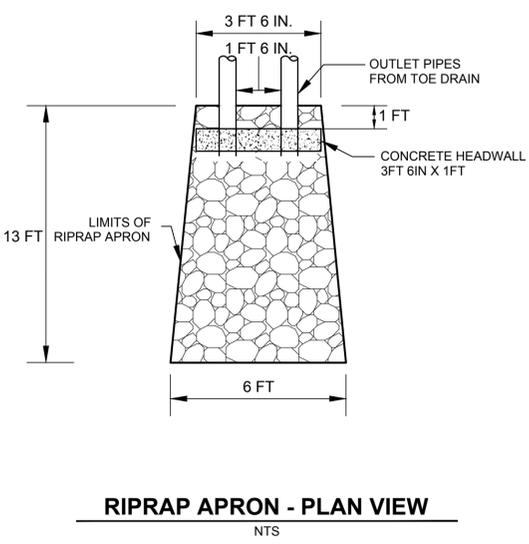
DOW BROOK RESERVOIR  
DAM REPAIRS

DAM PROFILE

**C-9**



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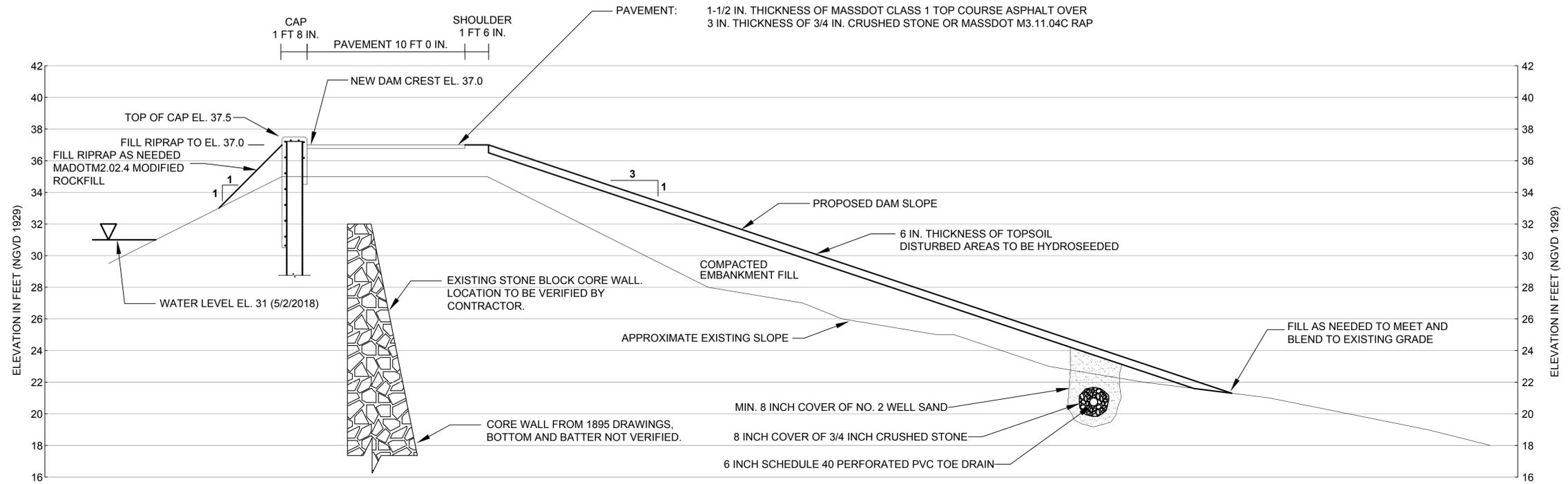
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3	BID	DJB	9/21/2018
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0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR  
DAM REPAIRS

TOE DRAIN PLAN  
AND DETAILS

**C-10**

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**TYPICAL NEW DAM SECTION**



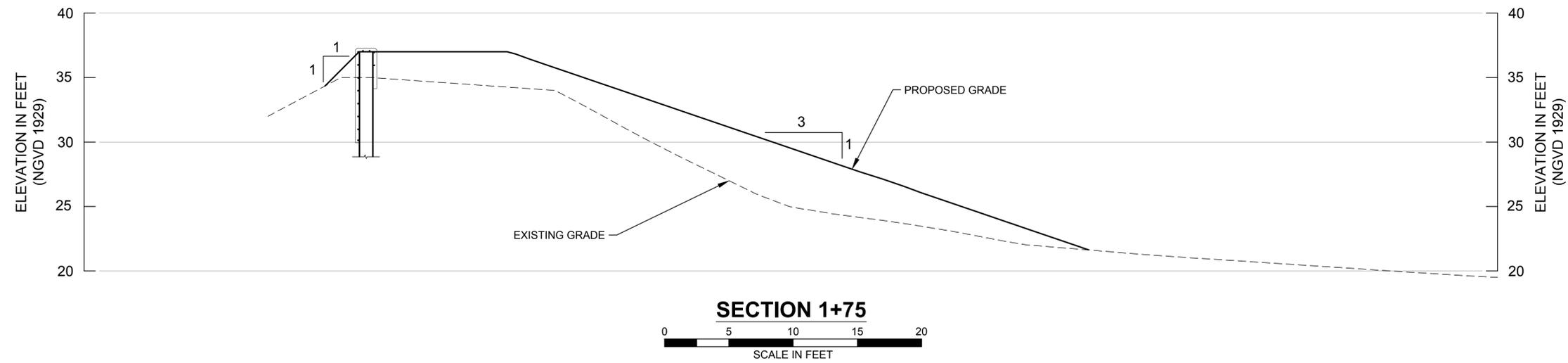
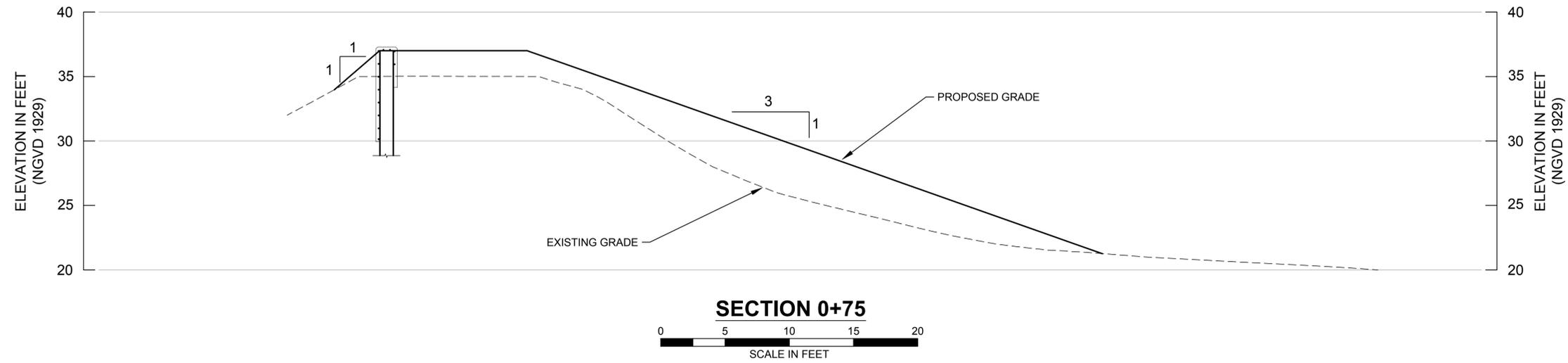
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DOW BROOK RESERVOIR  
DAM REPAIRS

TYPICAL NEW DAM  
SECTION

**C-11**



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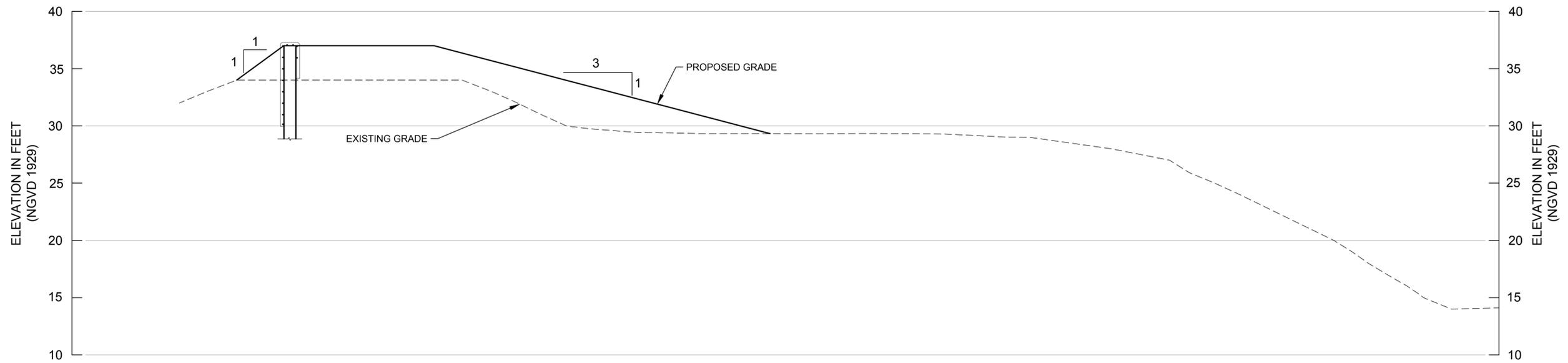
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DOW BROOK RESERVOIR  
DAM REPAIRS

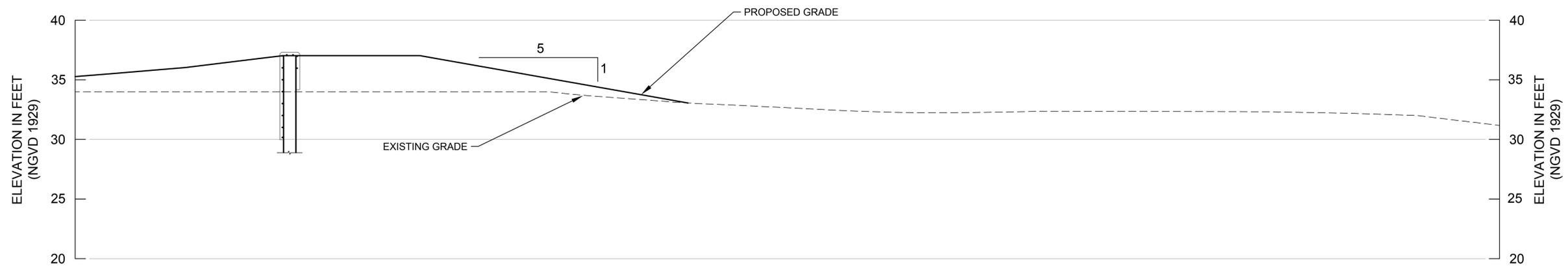
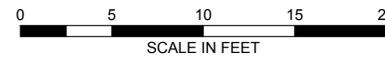
SECTIONS

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**SECTION 2+75**



**SECTION 3+75**



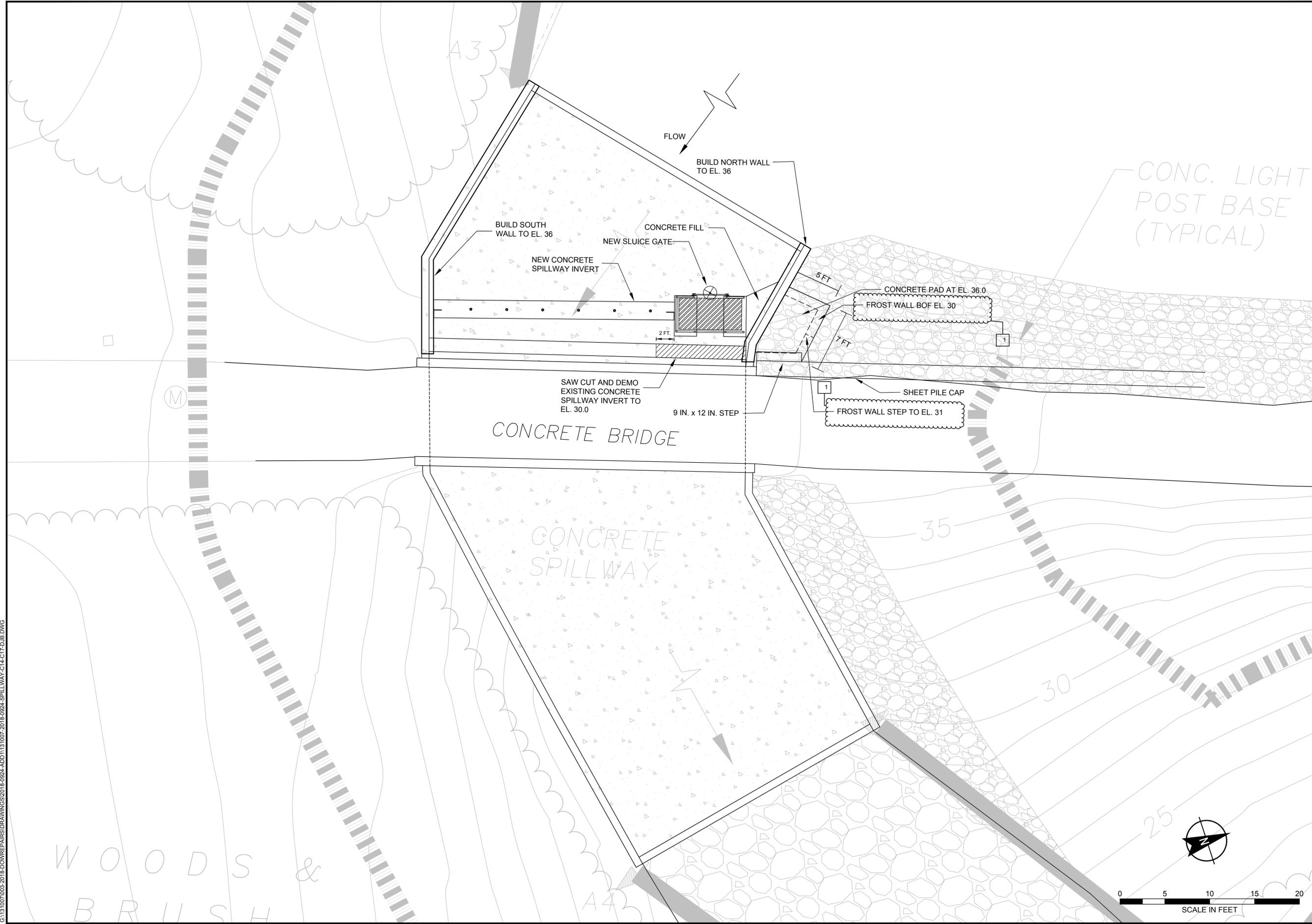
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Scale:	AS SHOWN
Date:	15 JUNE 2018
Drawn By:	JMV
Designed By:	DJB
Checked By:	
Approved By:	
Stamp:	

Rev.	Description	By	Date
4	BID	DJB	9/21/2018
3	REVIEW	DJB	9/12/2018
2	REVIEW	DJB	8/31/2018
1	PERMIT	DJB	7/17/2018
0	PERMIT	DJB	6/8/2018

DOW BROOK RESERVOIR  
DAM REPAIRS

SECTIONS

**C-13**



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Rev.	Description	By	Date
5	ADDENDUM 1	DJB	9/24/2018
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3	REVIEW	DJB	8/31/2018
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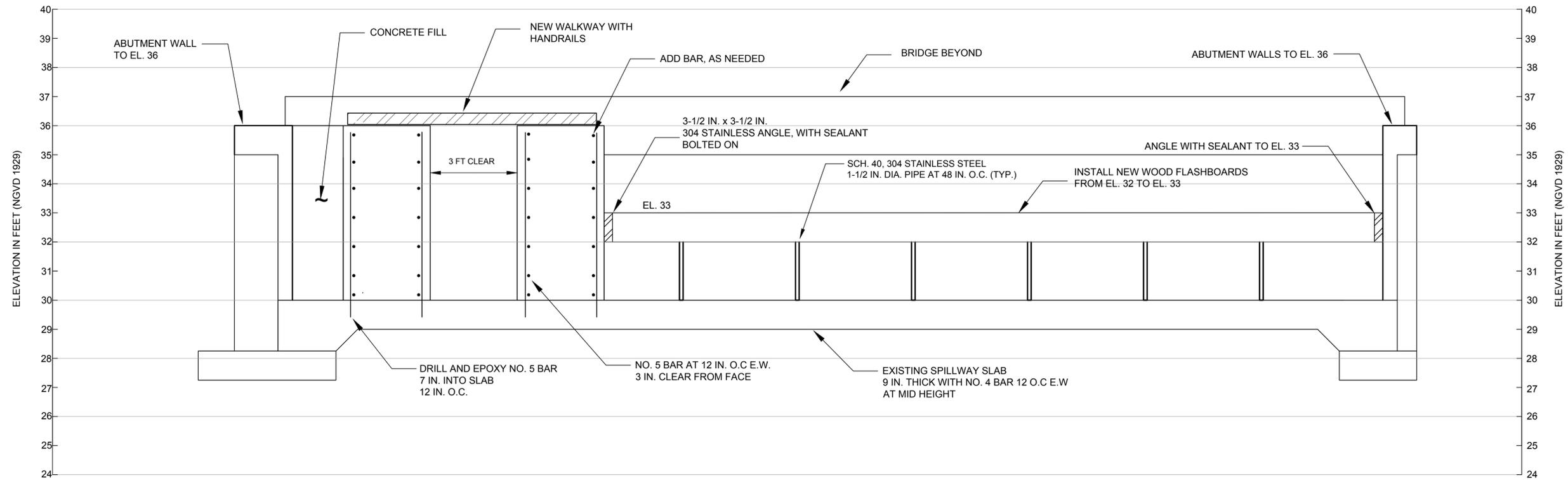
DOW BROOK RESERVOIR  
 DAM REPAIRS

SPILLWAY PLAN

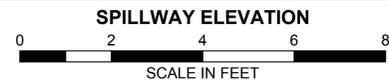
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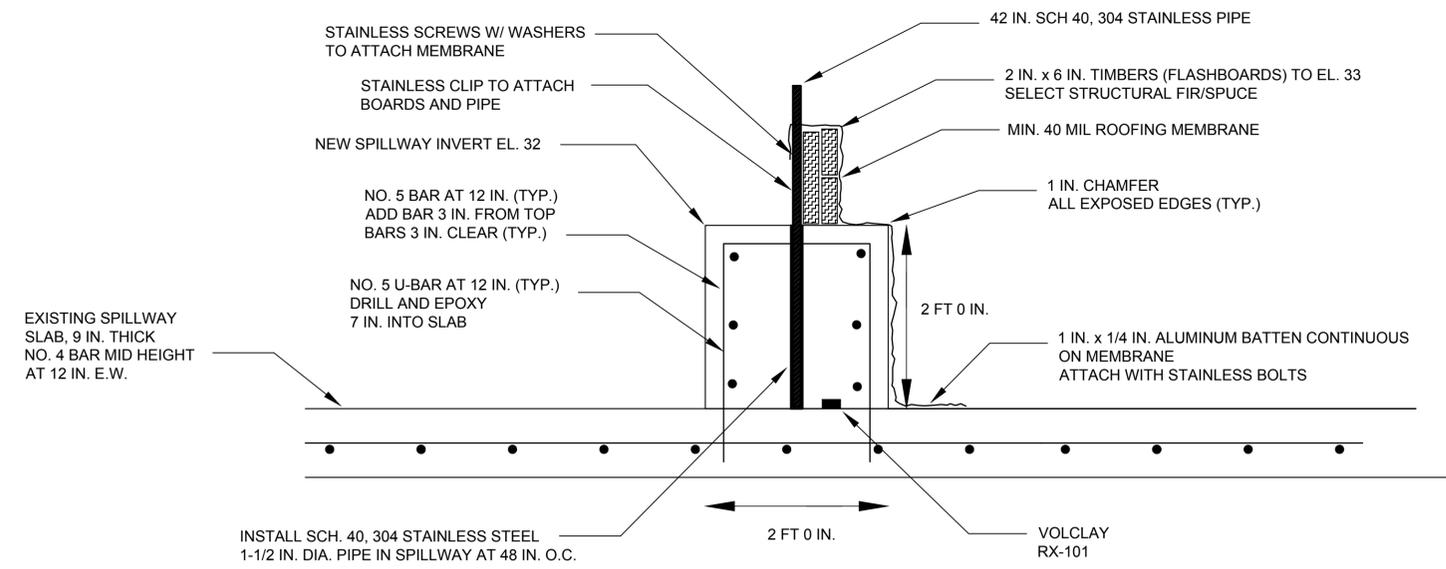
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NOTE: INSTALL VOLCLAY RX-101 BETWEEN NEW CONCRETE AND EXISTING SPILLWAY, SIDES AND BOTTOM.



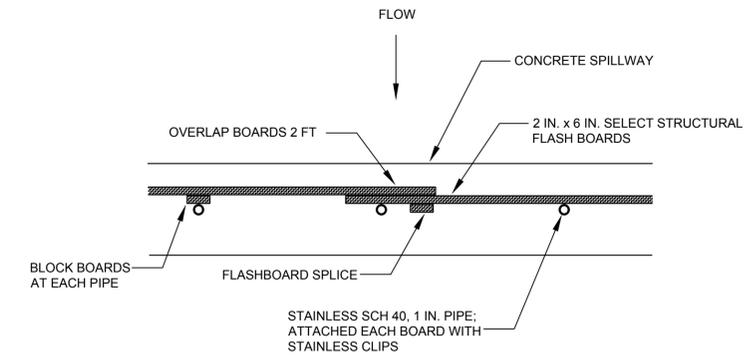
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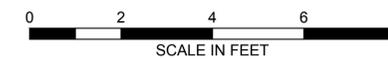
**SPILLWAY SECTION**



NOTE: 1. SUPPLY 12, SCH 40 304 STAINLESS STEEL 1 IN. DIA PIPE IN 42 IN. LENGTHS. INSTALL 6 PIPE IN SPILLWAY, SUPPLY IPSWICH WITH EXTRA 6 PIPES.



**FLASH BOARDS; PLAN DETAIL**



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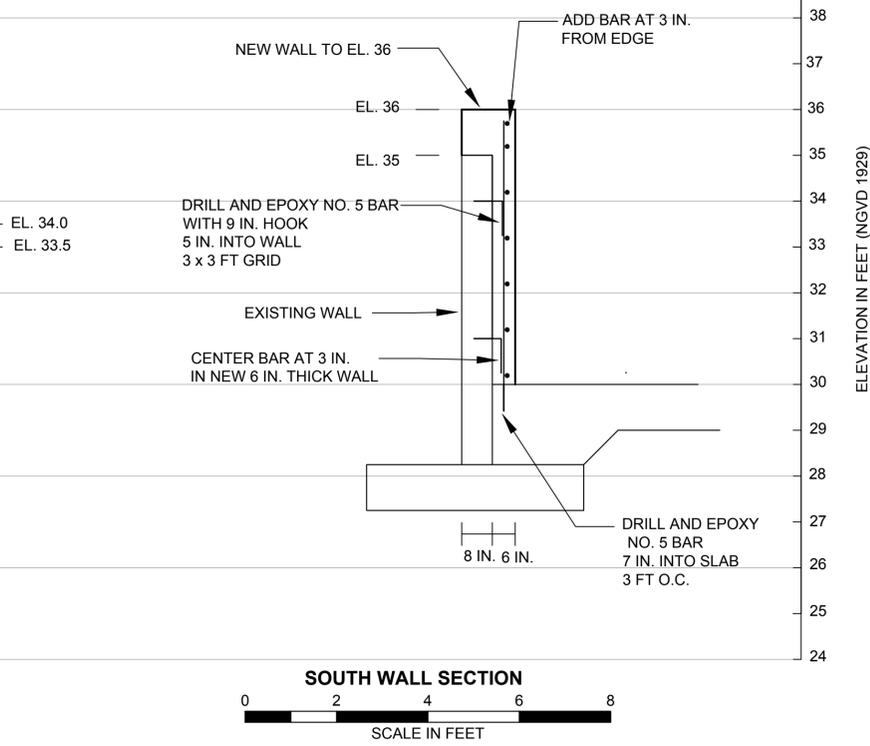
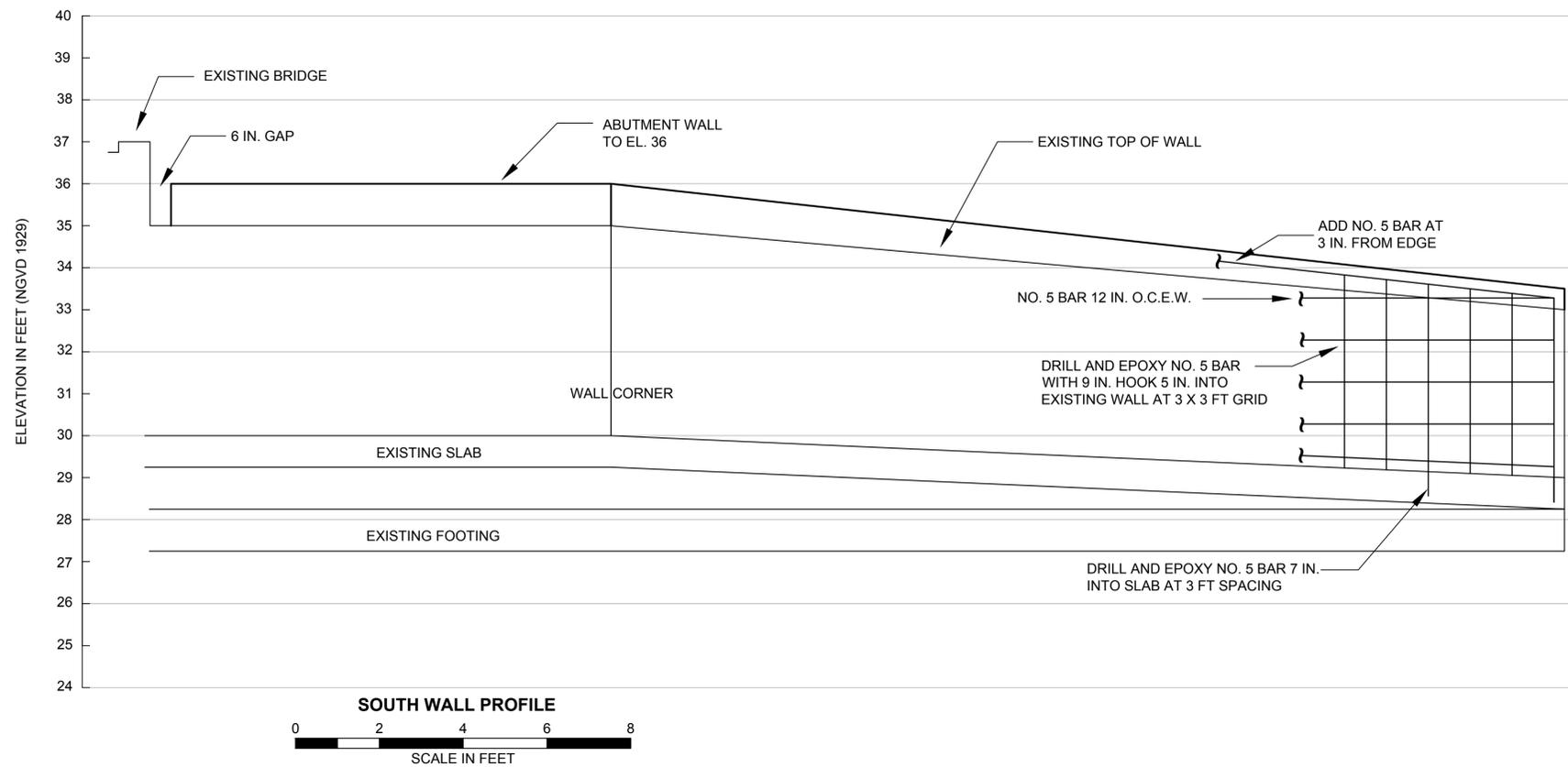
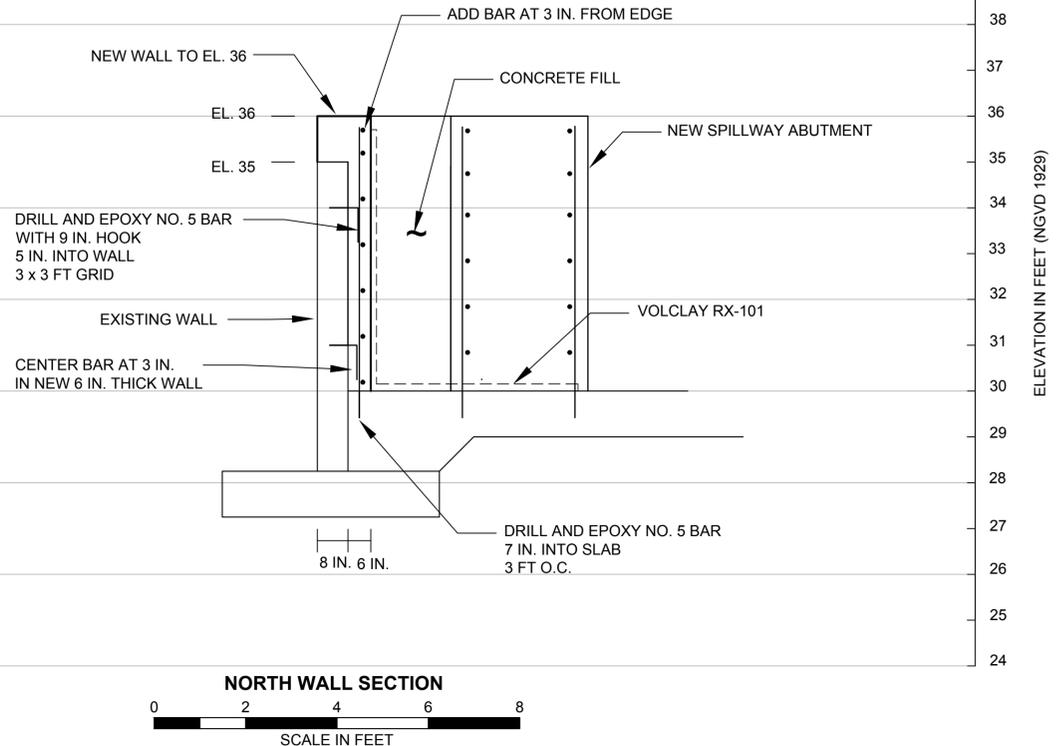
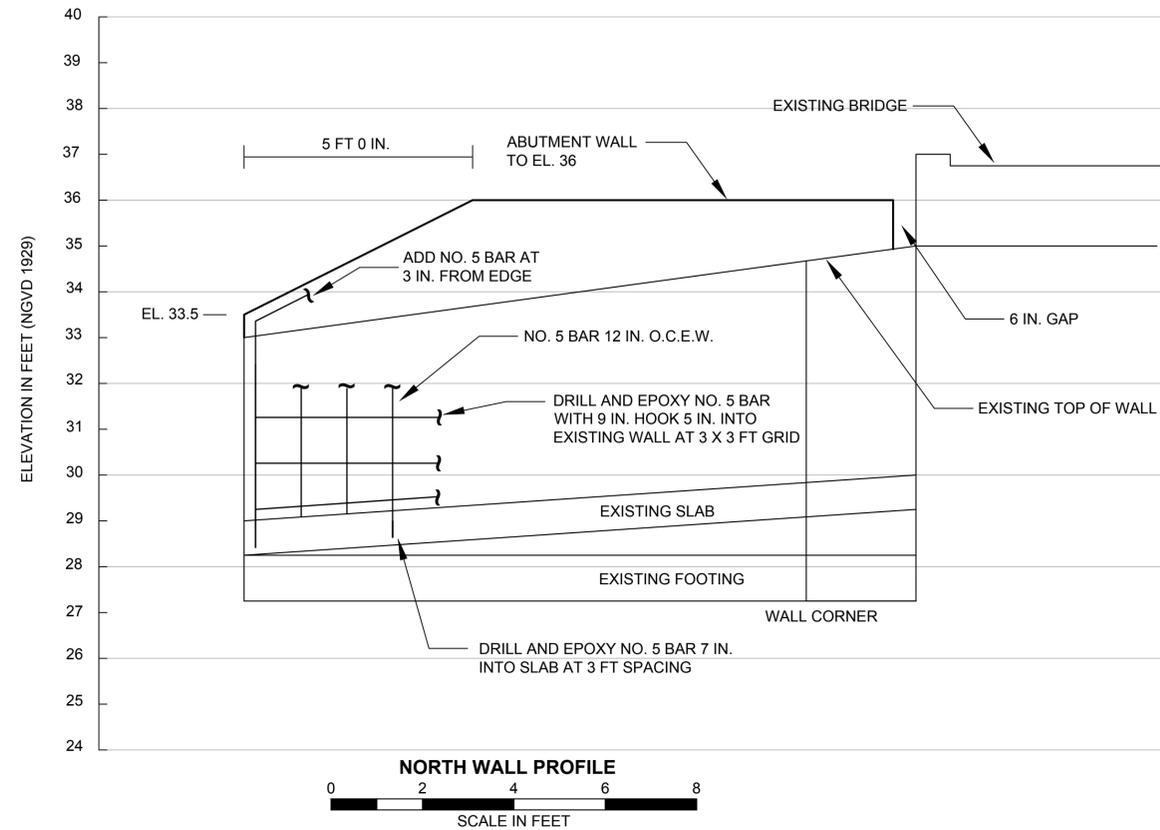
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3	REVIEW	DJB	8/31/2018
2	REVIEW	DJB	8/17/2018
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DOW BROOK RESERVOIR DAM REPAIRS

SPILLWAY DETAILS

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Rev.	Description	By	Date
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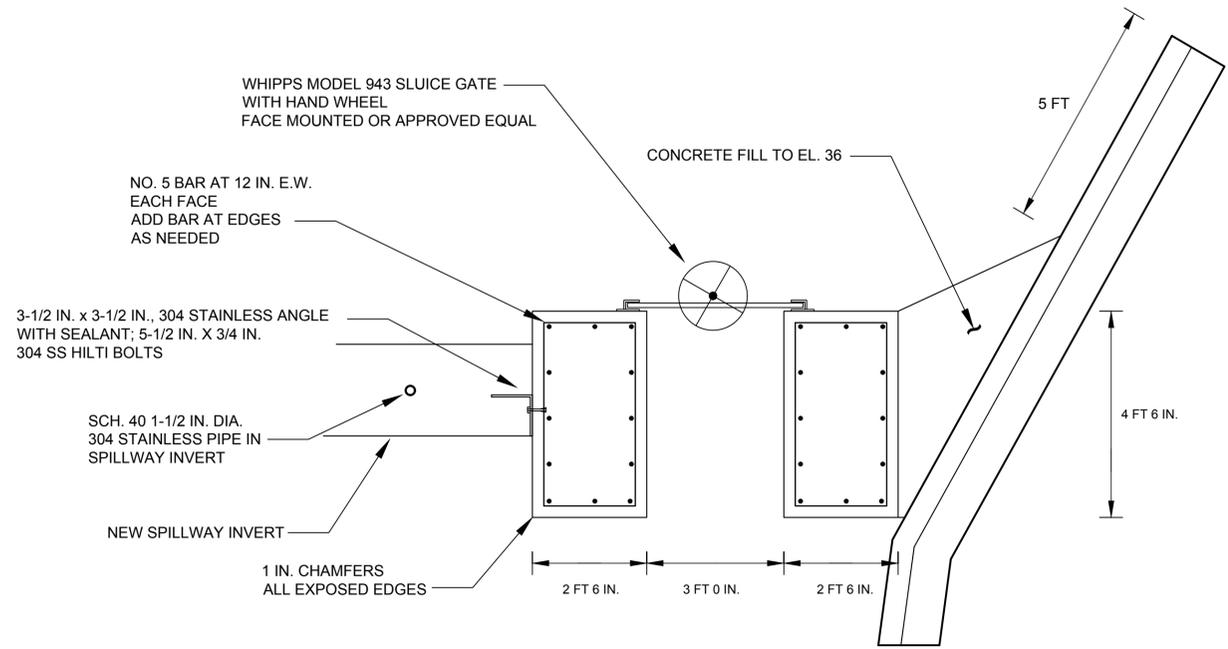
DOW BROOK RESERVOIR  
DAM REPAIRS

SPILLWAY DETAILS

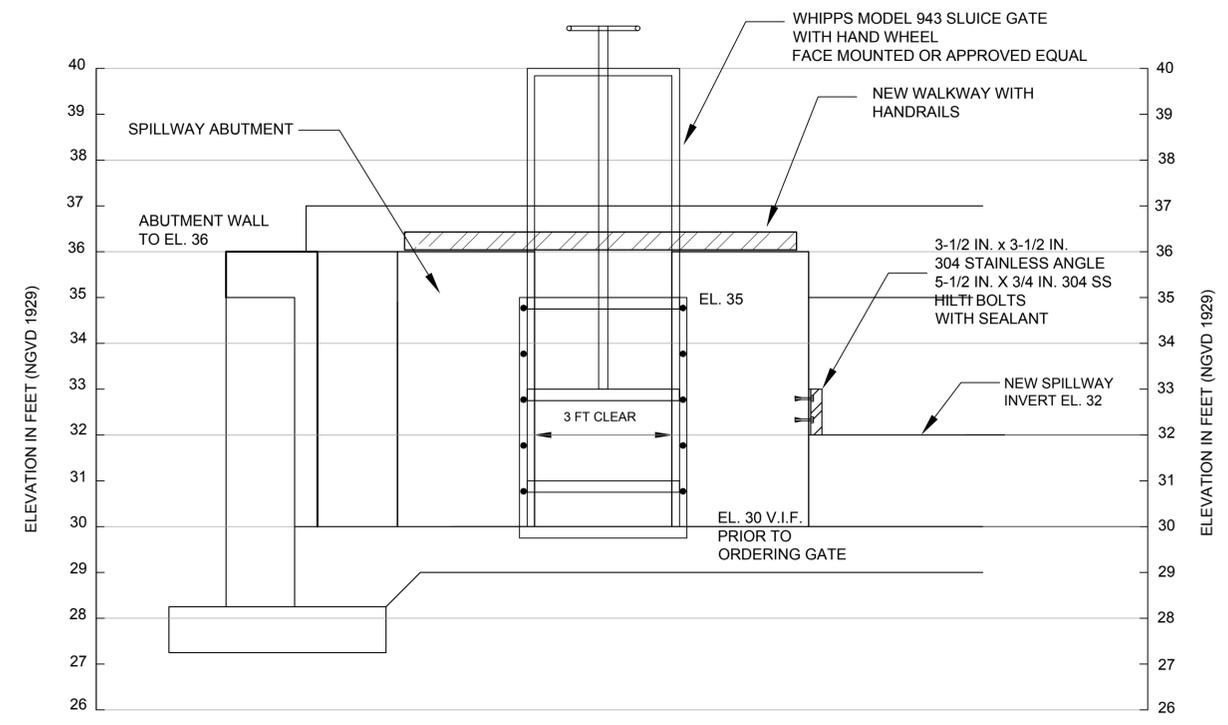
**C-16**

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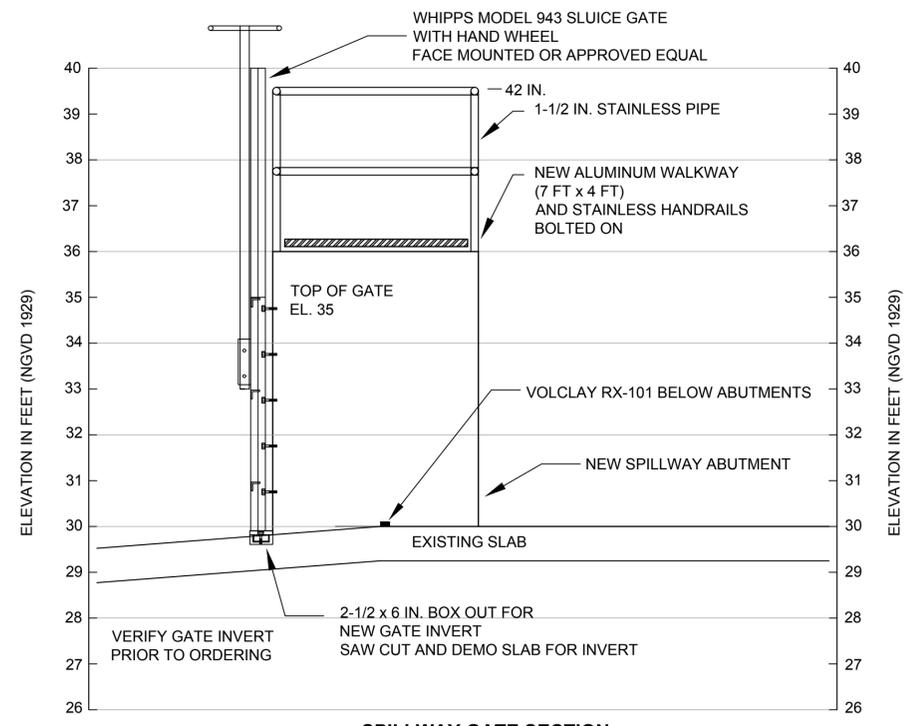
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**SPILLWAY ABUTMENT PLAN**  
0 2 4 6 8  
SCALE IN FEET



**SPILLWAY GATE ELEVATION**  
0 2 4 6 8  
SCALE IN FEET



**SPILLWAY GATE SECTION**  
0 2 4 6 8  
SCALE IN FEET

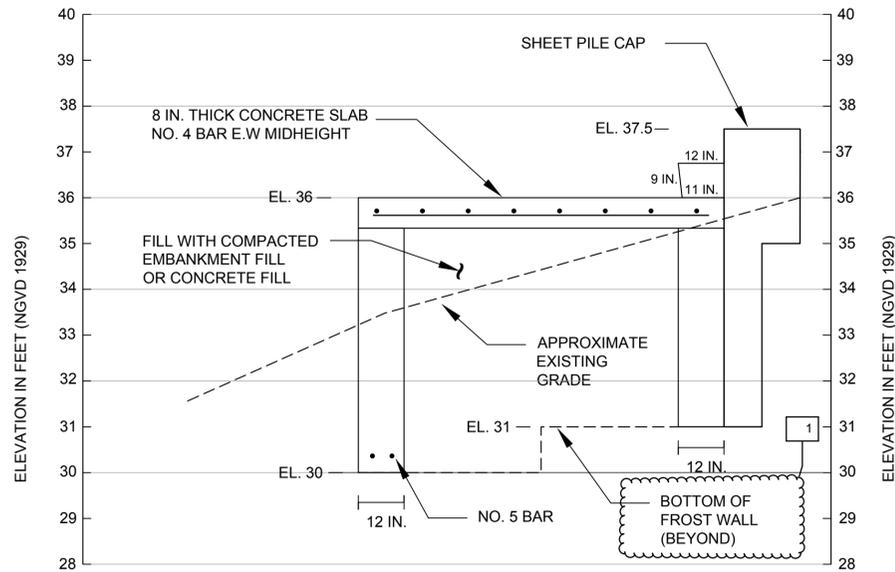
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Rev.	Description	By	Date
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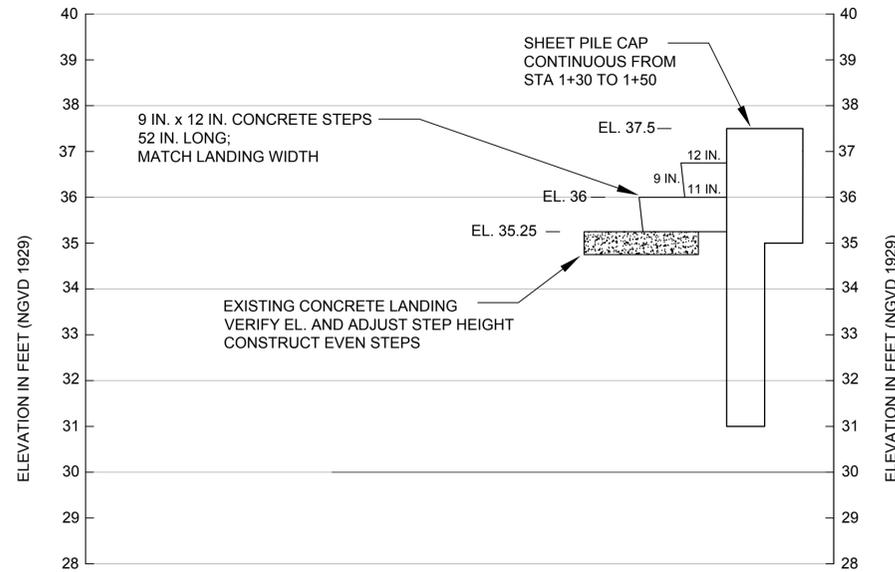
DOW BROOK RESERVOIR  
DAM REPAIRS

SPILLWAY DETAILS

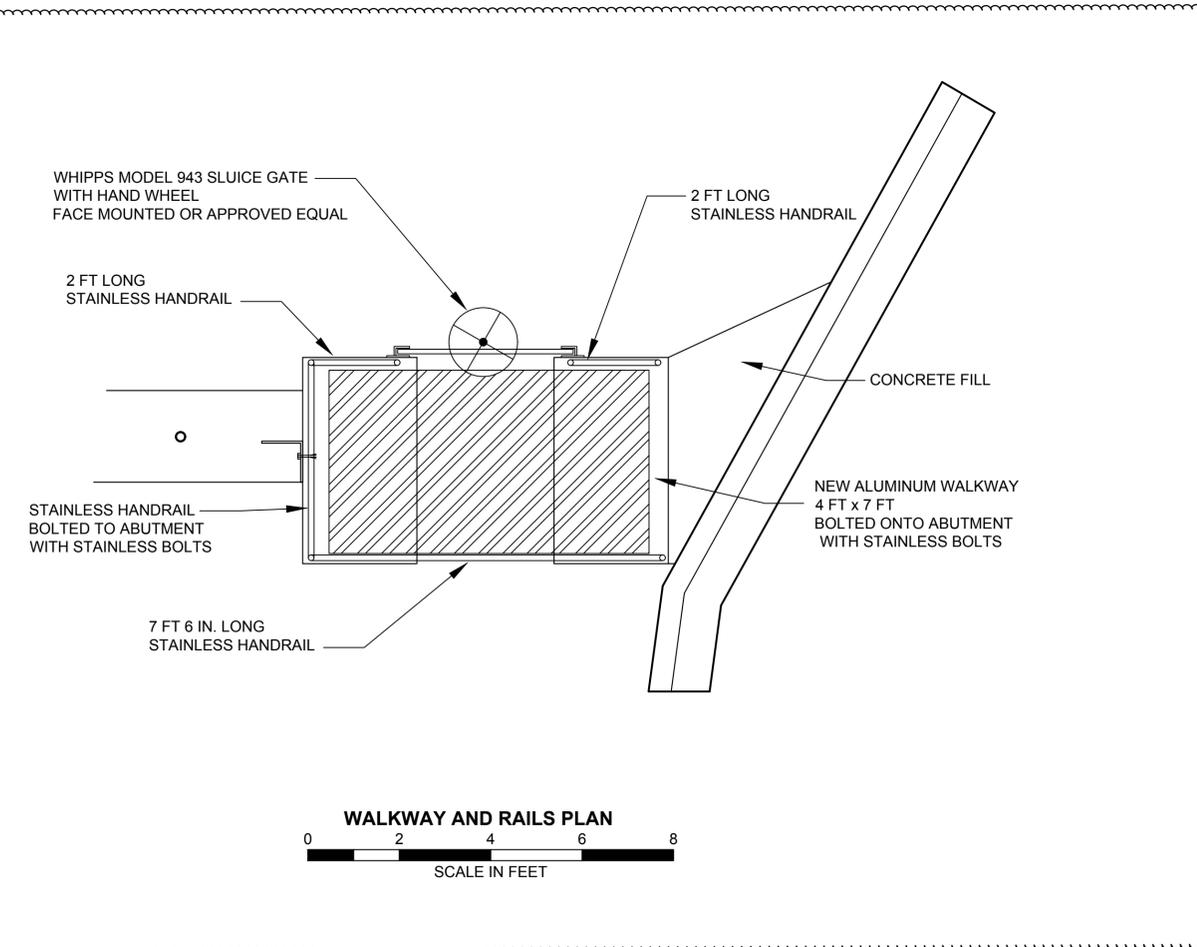
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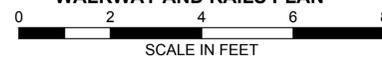
**CONCRETE PAD SECTION**



**STEPS AT GATEHOUSE**



**WALKWAY AND RAILS PLAN**



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Rev.	Description	By	Date
1	ADDENDUM 1	DJB	9/24/2018
0	BID	DJB	9/21/2018

DOW BROOK RESERVOIR  
DAM REPAIRS

DETAILS

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