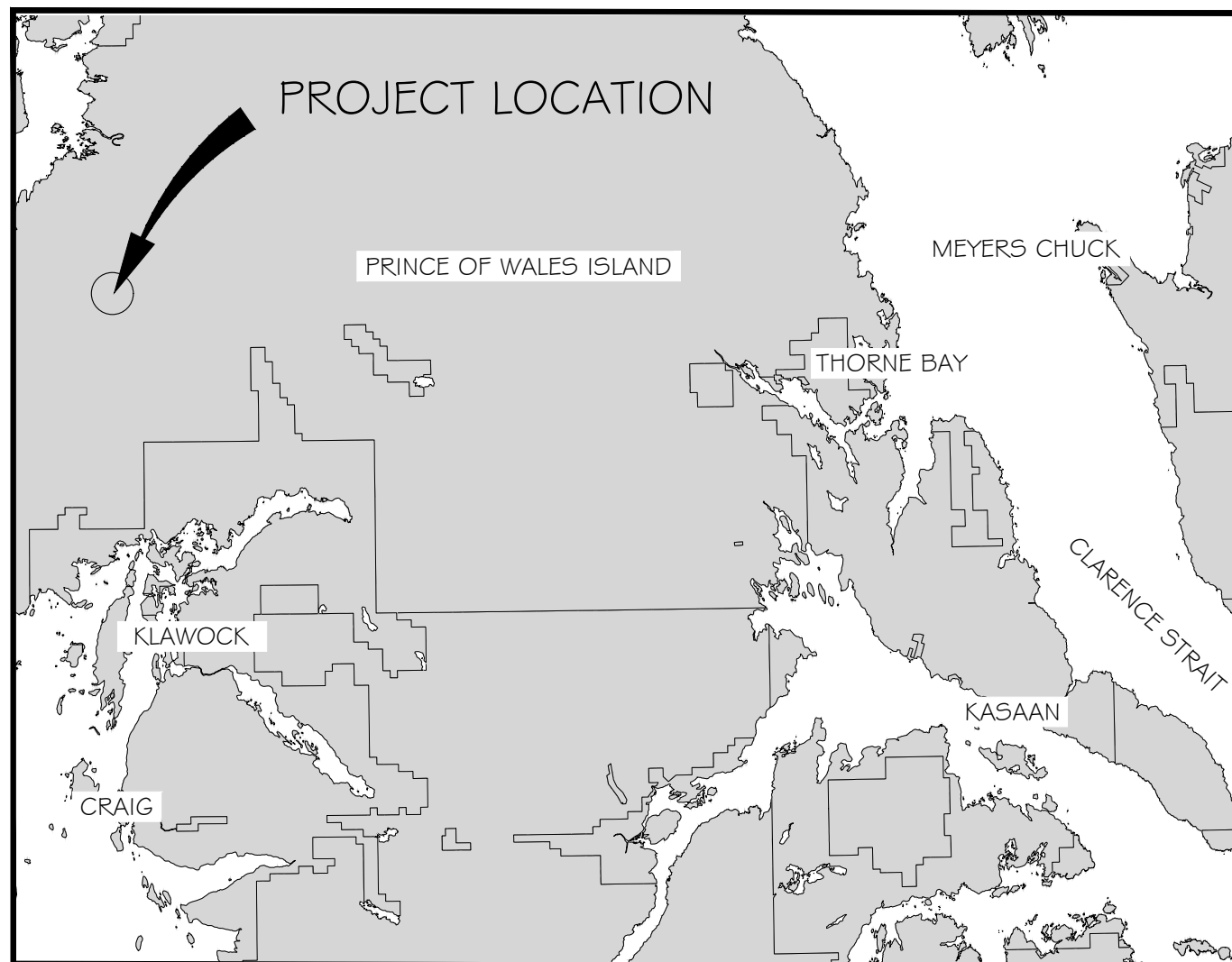
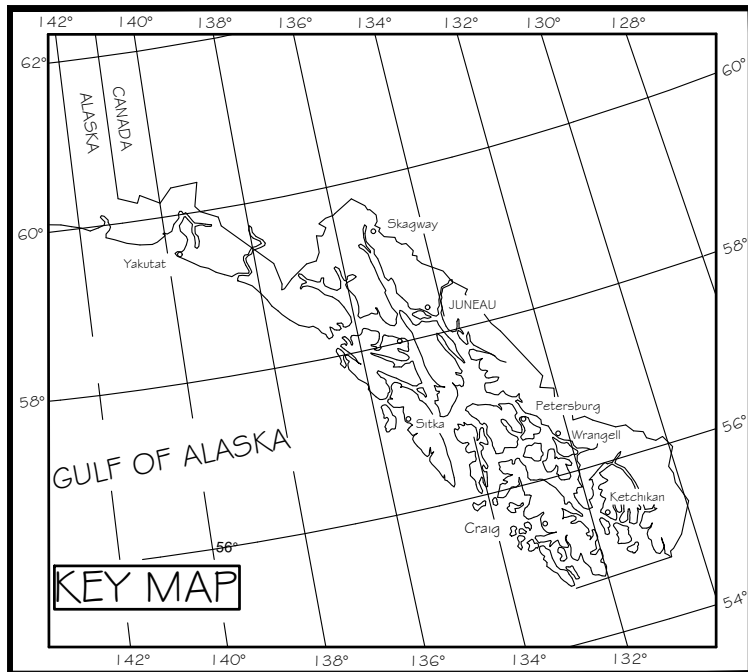


# 2019 PRINCE OF WALES ISLAND AQUATIC ORGANISM PASSAGE

NFSR 2050400 MP 4.49



## VICINITY MAP

USGS QUAD, CRAIG C-3, C4, ALASKA



SCALE IN MILES

## INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	SITE LOCATION MAP
3	PLAN & PROFILE
4	STREAM SIMULATION
5	CHANNEL DETAILS
6	OVERLAY & EXCAVATION
7	STREAM DEWATERING TYPICALS
8	PIT & QUARRY DEVELOPMENT PLAN

APPROVED	_____	DATE
REGIONAL ENGINEER	_____	DATE
RECOMMENDED	_____	DATE
FOREST SUPERVISOR	_____	DATE
RECOMMENDED	_____	DATE
DISTRICT RANGER	_____	DATE
RECOMMENDED	_____	DATE
FOREST ENGINEER	_____	DATE



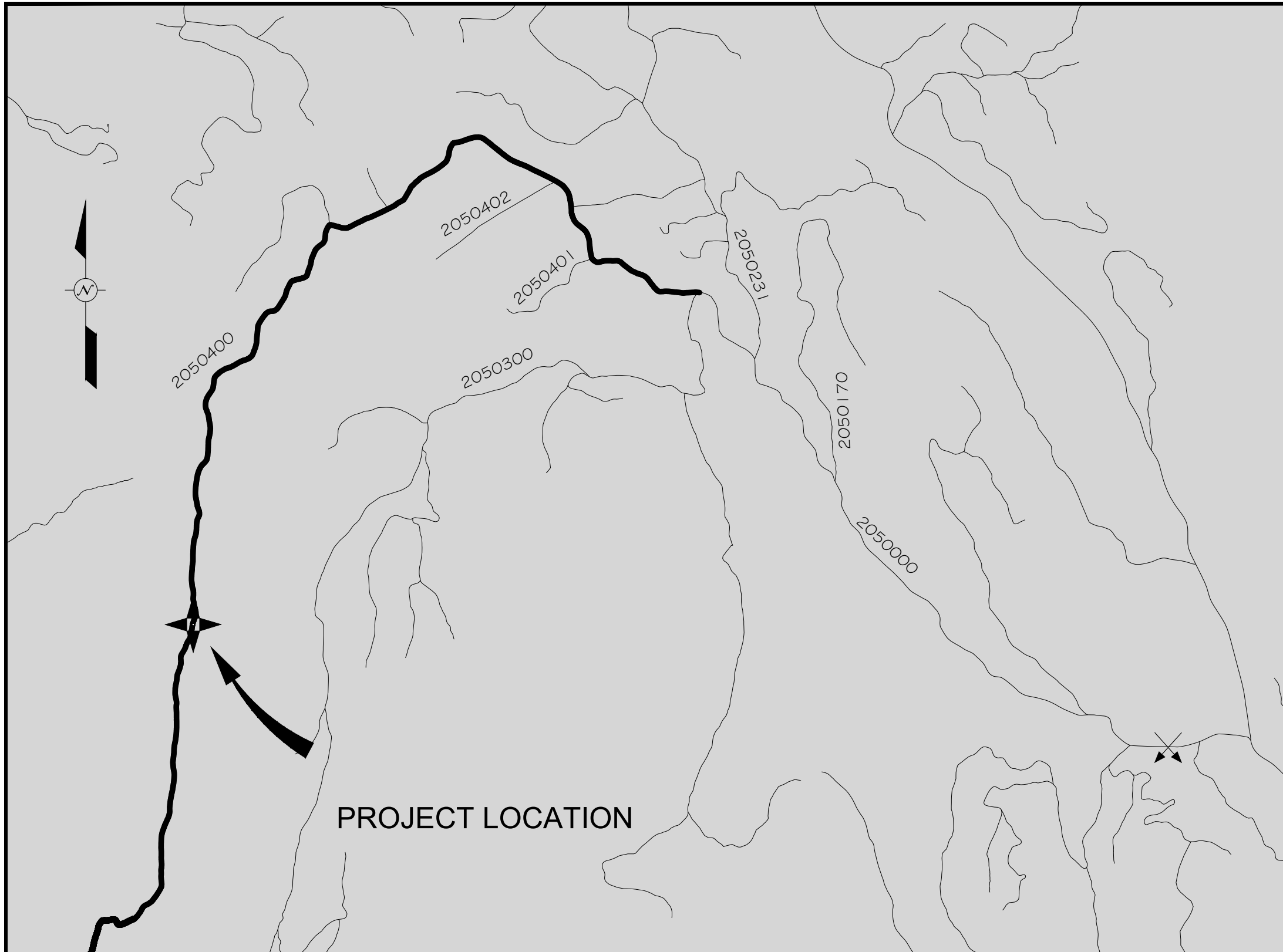
DESIGNED: K. CHERRY	DATE: MAY 2018	DATE:	REVISION:	BY:
DRAWN: K. CHERRY	DATE: MAY 2018			
REVIEWED: J. POWELL	DATE: JULY 2018			
TNFTYP:09/04				



NFSR 2050400 MP 4.49  
USDA FOREST SERVICE - TONGASS NATIONAL FOREST  
R-10 - CRAIG RANGER DISTRICT

TITLE SHEET  
1 TITLE SHEET  
PLOT ON 11"X17" PAPER  
SH. 1 of 8

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**NOTES:**

1. SITE LOCATIONS ARE APPROXIMATE.
2. NFSR 2050400 CLOSURES SHALL BE COORDINATED WITH THE CO 14 DAYS IN ADVANCE (SEE FOREST SERVICE SUPPLEMENTAL SPECIFICATION - FSSS 156)
3. THE QUARRY DESIGNATED FOR USE IN THIS PROJECT IS LISTED IN THE ROCK SOURCE LOCATION TABLE SHOWN BELOW. THE CONTRACTOR MAY USE OTHER QUARRIES ON THE ROAD SYSTEM WHEN REQUESTED IN WRITING & APPROVED BY THE CONTRACTING OFFICER. OTHER QUARRIES ARE SHOWN ON THE SITE LOCATION MAP.
4. AGGREGATE SURFACING IS STOCKPILED AT THE DESIGNATED LOCATION. STREAMBED MATERIALS ARE AVAILABLE AND SHALL BE SORTED TO MEET CONTRACT SPECIFICATIONS.



DESIGNATED ROCK SOURCE LOCATION	
ROAD	MILEPOST
2050000	0.52

**LEGEND**

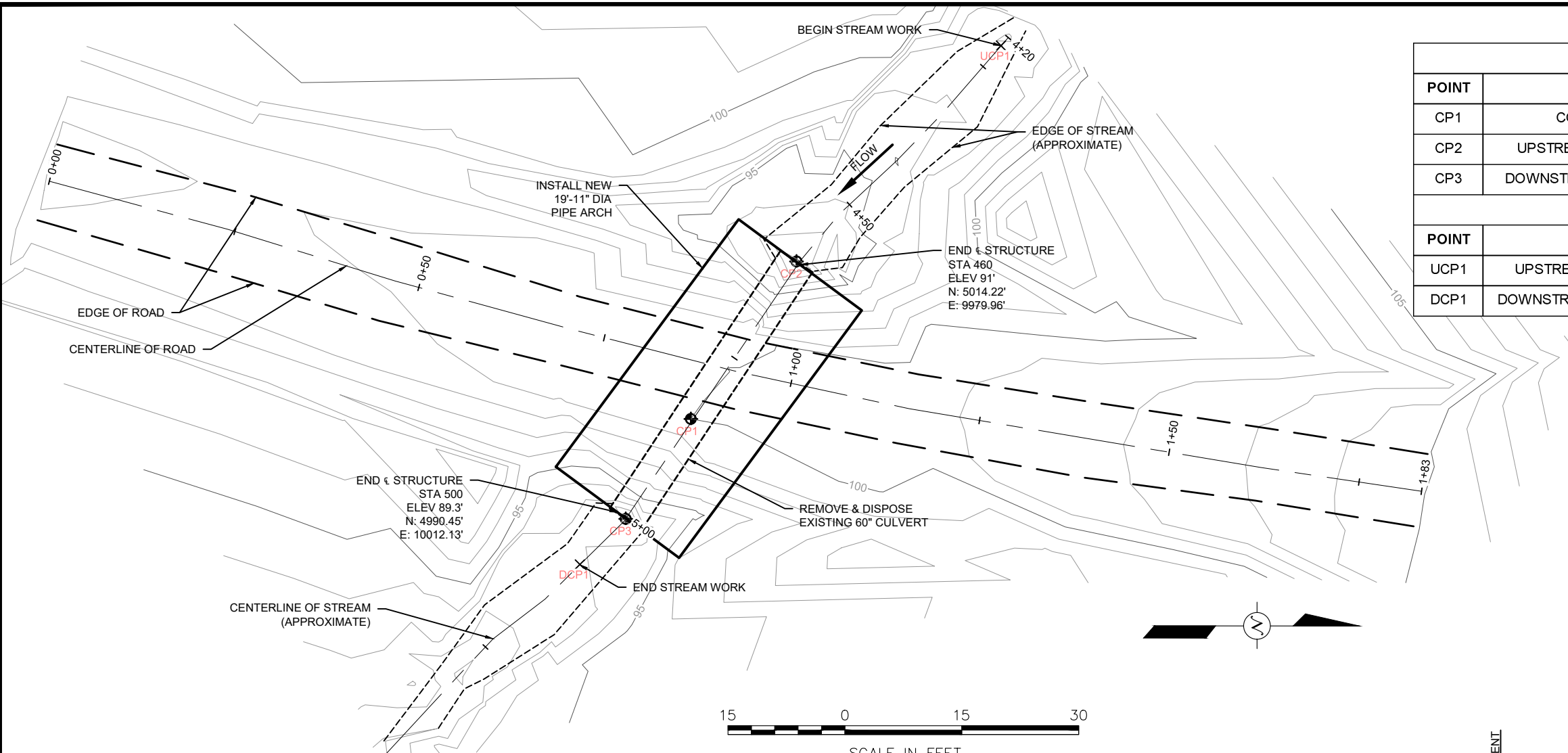
-  PROJECT ROAD
-  OTHER ROADS
-  DESIGNATED ROCK SOURCE
-  OTHER ROCK SOURCES
-  PROJECT LOCATION

**SITE LOCATION MAP**



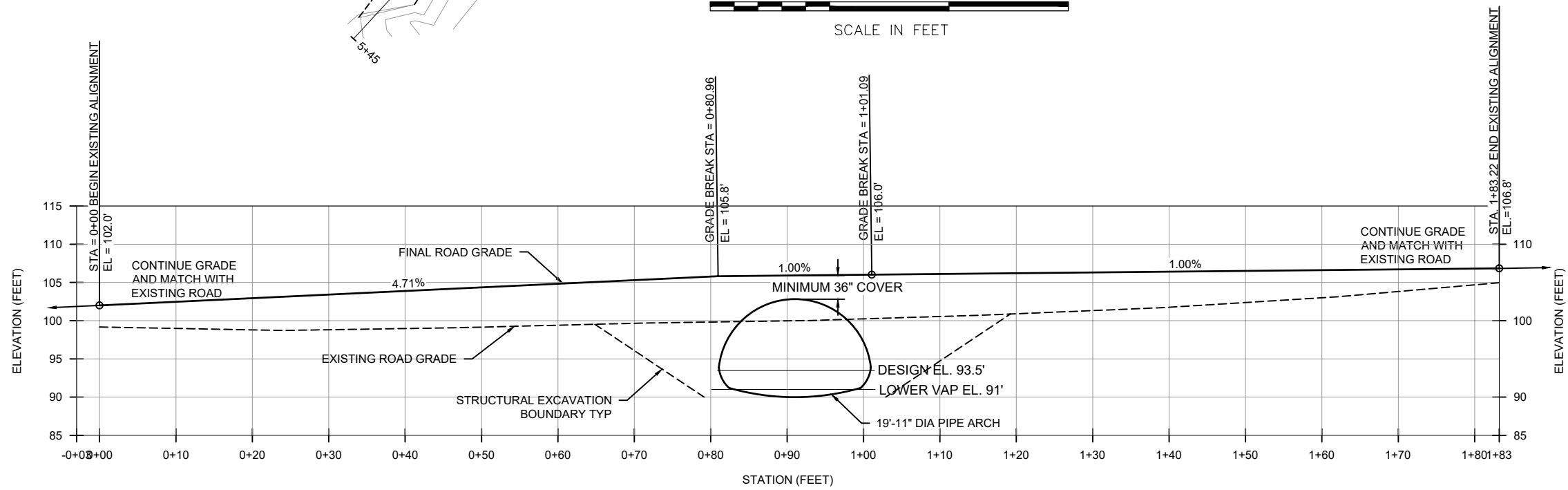
	DESIGNED: K. CHERRY	DATE: MAY 2018	DATE:	REVISION:	BY:		NFSR 2050400 MP 4.49	SITE LOCATION MAP	
	DRAWN: K. CHERRY	DATE: MAY 2018						USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG RANGER DISTRICT	2 SITE LOCATION MAP PLOT ON 11"X17" PAPER
	REVIEWED: J. POWELL	DATE: JULY 2018							
	TNFTYP:09/04								

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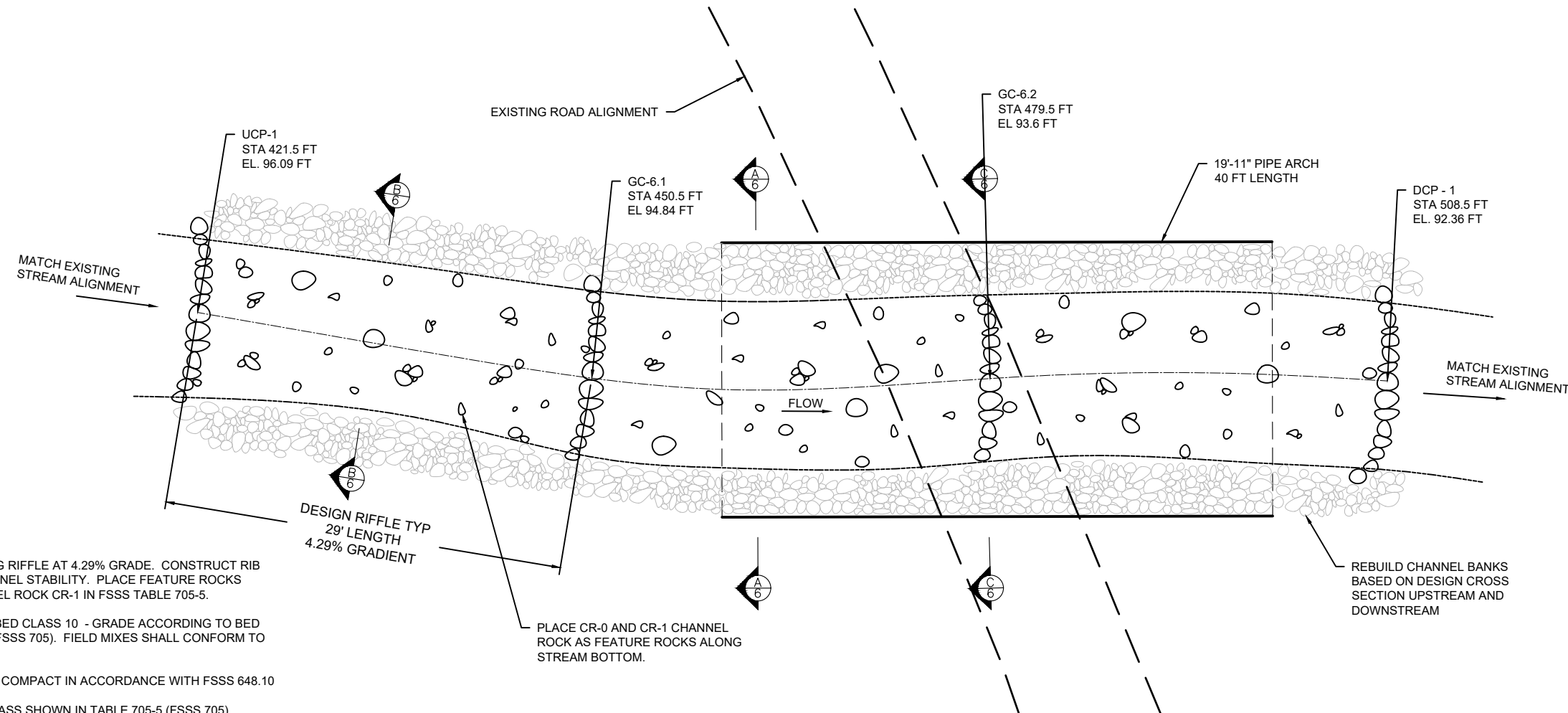


CONTROL POINTS				
POINT	DESCRIPTION	ELEVATION	NORTHING	EASTING
CP1	CONTROL POINT 1	100'	5000'	10000'
CP2	UPSTREAM CULVERT INVERT	90.37'	5013.74'	9979.52'
CP3	DOWNSTREAM CULVERT INVERT	90.31'	4991.53'	10012.99'
STREAM CONTROL POINTS				
POINT	DESCRIPTION	ELEVATION	NORTHING	EASTING
UCP1	UPSTREAM CONTROL POINT 1	96.09'	5040.33'	9951.46'
DCP1	DOWNSTREAM CONSTROL POINT 1	92.36'	4985.57'	10018.91'

- NOTES:
- SUITABLE EXCAVATED MATERIAL MAY BE USED AS BACKFILL FOR INSTALLATION OF NEW CULVERT. UNSUITABLE MATERIAL WILL BE DISPOSED AT A SITE DESIGNATED BY THE CO. REPLACEMENT MATERIAL SHALL BE QUARRY BORROW PAID WITH BID ITEM 204.
  - CLEARING LIMITS SHALL BE 10 FEET BEYOND TOES OF SLOPES & LIMITS OF CHANNEL WORK, UNLESS OTHERWISE DIRECTED BY THE CO.
  - STAGING AREAS SHALL BE APPROVED BY THE CO.
  - ROAD SURFACING FOR THIS SITE IS LOCATED AT THE QUARRY ON 2050000 AT MP 0.52. STREAMBED MATERIAL AND CHANNEL ROCK SHALL BE GENERATED BY THE CONTRACTOR AT THIS LOCATION.
  - CONSTRUCT THE PROJECT IN COMPLIANCE WITH FEDERAL HIGHWAY ADMINISTRATION STANDARD SPECIFICATIONS FOR CONSTRUCTION OF ROAD AND BRIDGES ON HIGHWAY LANDS (FP-14) AND SUPPLIED FOREST SERVICE SUPPLEMENTAL SPECIFICATIONS.
  - SUBMIT A DEWATERING AND SOIL EROSION PLAN TO THE CO FOR APPROVAL AT LEAST 14 DAYS PRIOR TO BEGINNING WORK. SEE SECTION 157 OF THE FS SUPPLEMENTAL SPECIFICATIONS FOR DETAILS.
  - THE WORK WINDOW FOR THIS PROJECT IS JUNE 25TH THROUGH SEPTEMBER 1ST.
  - ALIGN NEW PIPE WITH SURVEY POINTS. EXISTING PIPE AND NEW PIPE ARE NOT ON THE SAME EXACT IMPRINT.
  - STEEL STRUCTURAL PLATE PIPE ARCH AND ASSEMBLY FASTENERS FOR CONNECTING PLATES SHALL CONFORM TO AASHTO M 167.
  - PIPE ARCH PANEL THICKNESS: 10 GAGE (0.140 IN) STANDARD 6" X 2" CORRUGATION



	DESIGNED: K. CHERRY	DATE: MAY 2018	DATE:	REVISION:	BY:		NFSR 2050400 MP 4.49 USDA FOREST SERVICE - TONGASS NATIONAL FOREST R-10 - CRAIG RANGER DISTRICT	PLAN & PROFILE 2050400 MP4.49.dwg PLOT ON 11"X17" PAPER	
	DRAWN: K. CHERRY	DATE: MAY 2018							
	REVIEWED: J. POWELL	DATE: JULY 2018							
	TNFTYP:09/04								



**STREAM SIMULATION NOTES:**

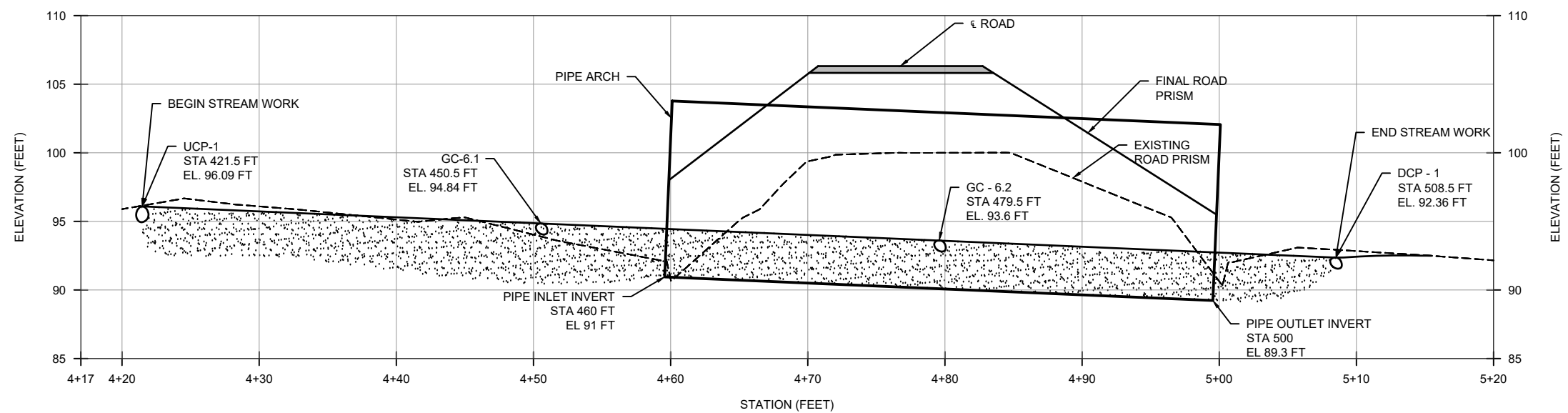
DESIGN RIFFLE: CONSTRUCT 29' LONG RIFFLE AT 4.29% GRADE. CONSTRUCT RIB AT END OF RIFFLE TO PROVIDE CHANNEL STABILITY. PLACE FEATURE ROCKS ALONG RIFFLE ADHERING TO CHANNEL ROCK CR-1 IN FSSS TABLE 705-5.

STREAMBED SIMULATION MATERIAL BED CLASS 10 - GRADE ACCORDING TO BED CLASS DESIGNATED IN TABLE 705-4 (FSSS 705). FIELD MIXES SHALL CONFORM TO THE FIELD MIX GUIDE ON SHEET 5.

STREAMBED SIMULATION MATERIAL - COMPACT IN ACCORDANCE WITH FSSS 648.10

STREAMBED CHANNEL ROCK SIZE CLASS SHOWN IN TABLE 705-5 (FSSS 705)

DURING STREAMBED CONSTRUCTION, WASH IN FINES IN 1' LIFTS DURING PLACING OF STREAMBED MATERIAL TO MINIMIZE VOIDS.



DESIGNED: K. CHERRY    DATE: MAY 2018  
 DRAWN: K. CHERRY    DATE: MAY 2018  
 REVIEWED: J. POWELL    DATE: JULY 2018  
 TNFTYP: 09/04

DATE:	REVISION:	BY:

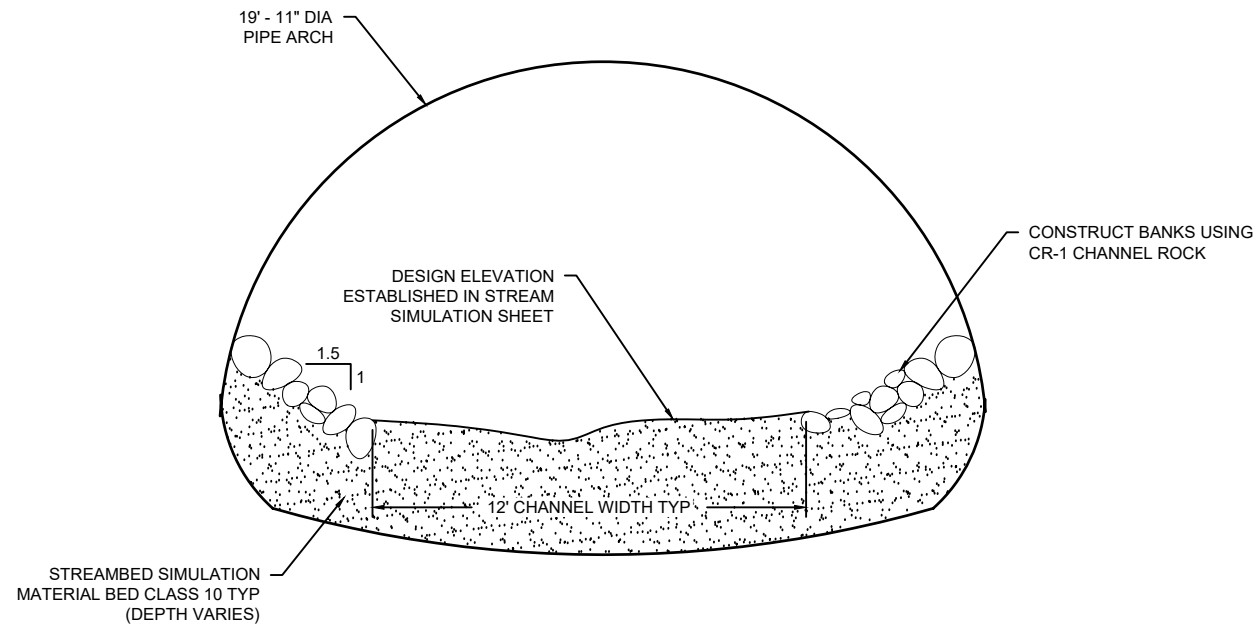


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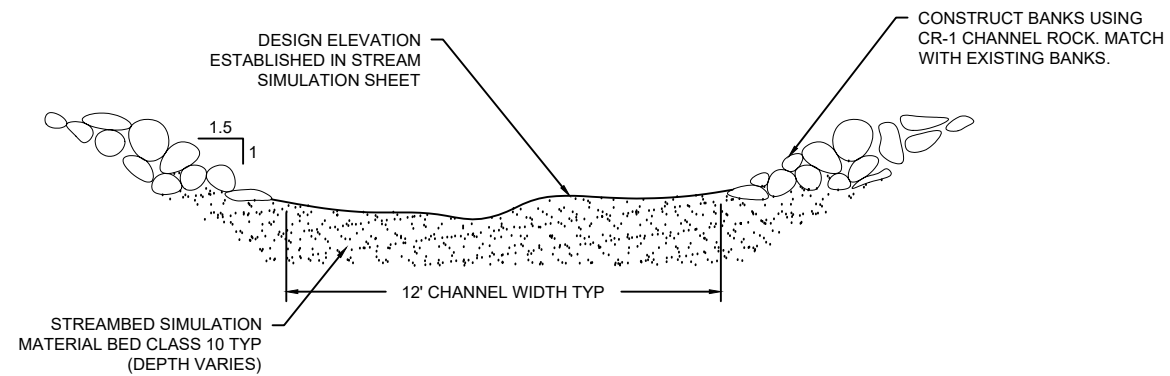
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 PLOT ON 11"X17" PAPER

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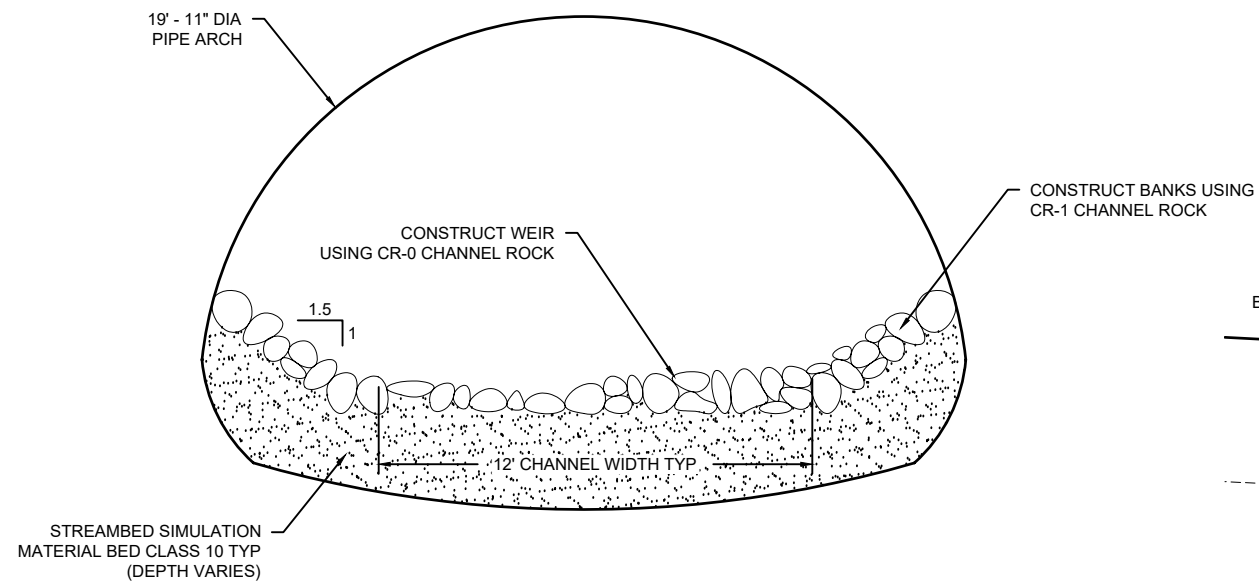
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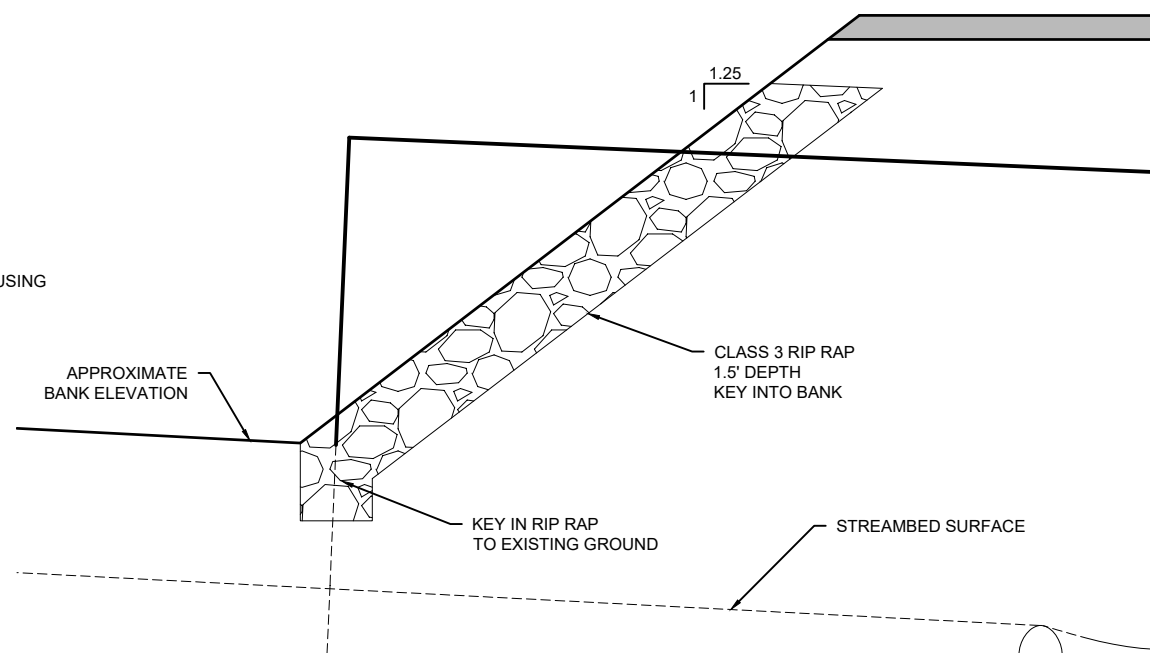
**A** DESIGN CROSS SECTION  
NTS



**B** DESIGN CHANNEL CROSS SECTION  
NTS



**C** DESIGN WEIR CROSS SECTION  
NTS



**D** RIP RAP DETAIL  
NTS

**CLASS 10 STREAMBED SIMULATION ROCK**

FIELD MIX GUIDE	
PROPORTIONS	SIZE RANGE
1.5 UNITS	9" - 20"
3.5 UNITS	4" - 9"
2 UNITS	2" - 4"
3 UNITS	> 2"

**CHANNEL ROCK**

Class	Approximate Cubic Dimension (inches)
CR - 0	6 - 12
CR - 1	12 - 18

Note: Mass / Pounds of channel is based on a sphere of the approximate cubic dimensions composed of granite. Mass will vary with rock type. Inspection should be performed by using the cube root of the A axis \* B axis \* C axis of each piece.

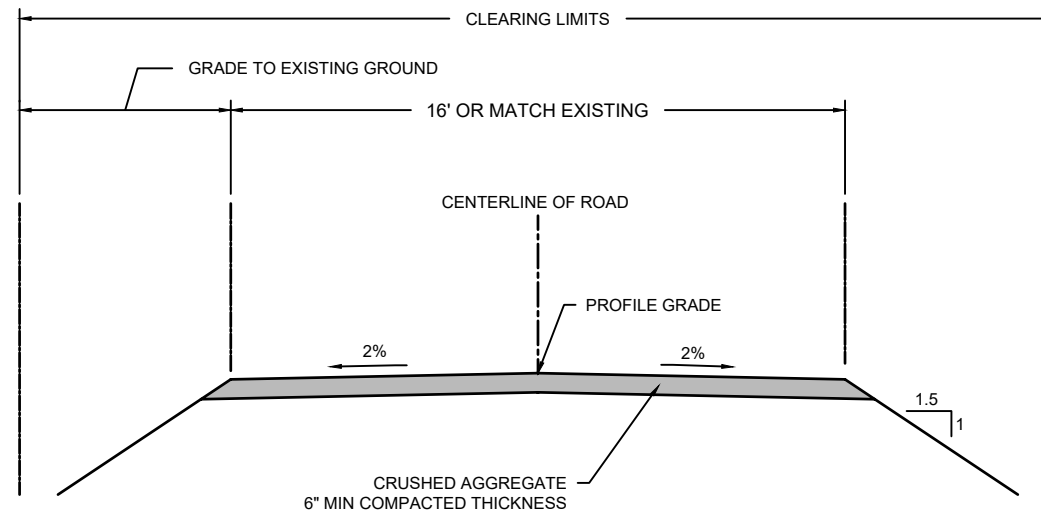


DESIGNED: K. CHERRY	DATE: JUNE 2018	DATE:	REVISION:	BY:
DRAWN: K. CHERRY	DATE: JUNE 2018			
REVIEWED: J. POWELL	DATE: JULY 2018			
TNFTYP: 09/04				

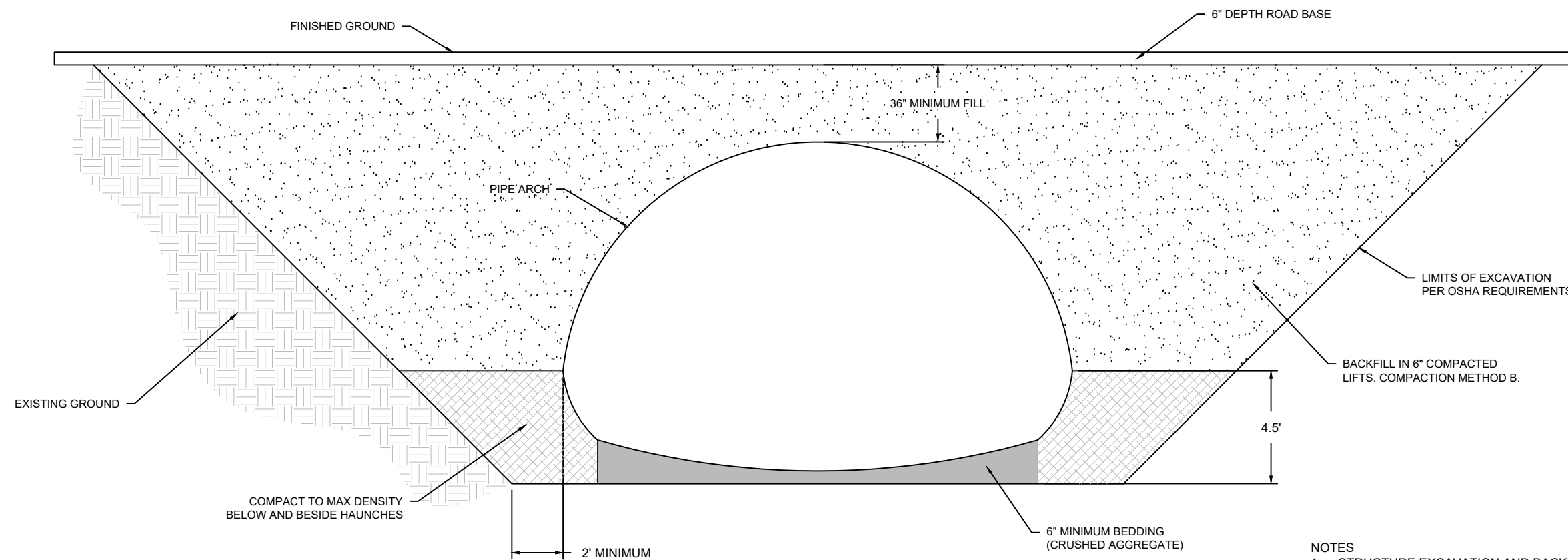


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CHANNEL DETAILS  
 2050400 MP4.49.dwg  
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 SH. 5 of 8



**E** TYPICAL ROAD SECTION  
NTS



**F** STRUCTURAL EXCAVATION AND BACKFILL  
NTS

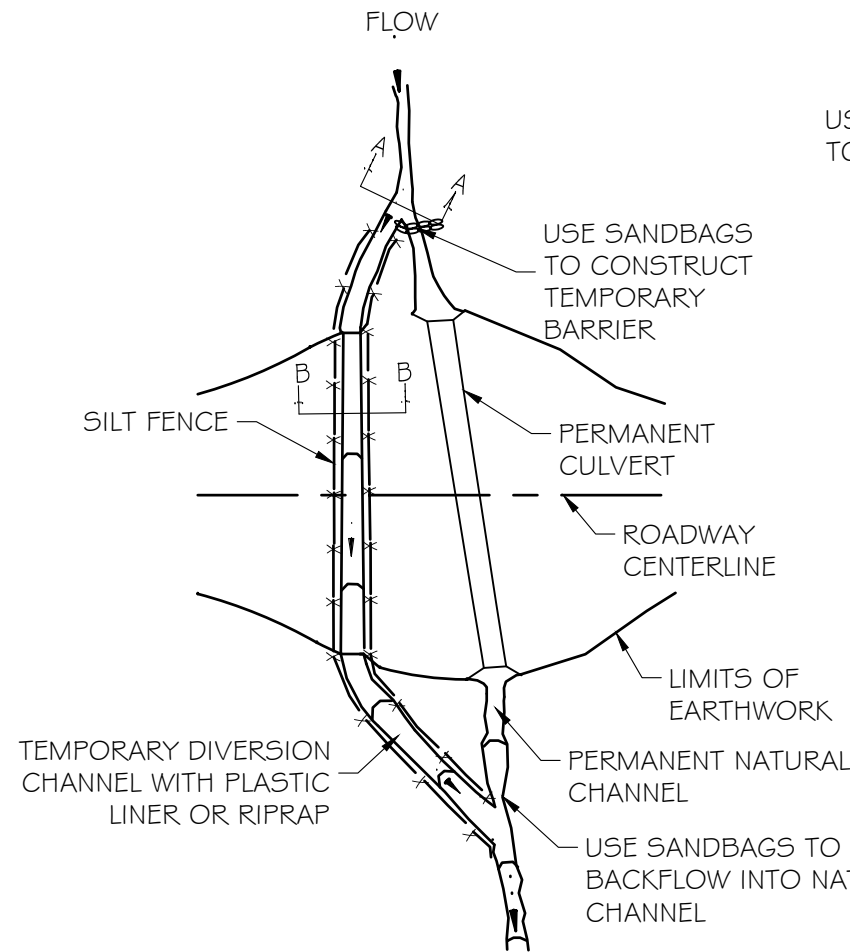
NOTES

1. STRUCTURE EXCAVATION AND BACKFILL MUST CONFORM TO SECTION 209 OF FP-14.
2. LAY 6" THICK AGGREGATE BEDDING UNDER PIPE.
3. PLACE AND COMPACT BACKFILL MATERIAL TO A HEIGHT OF 12" ABOVE THE TOP OF THE STRUCTURAL PLATE STRUCTURE.
4. COMPACTION MUST CONFORM TO SECTION 209.10 OF FP-14.

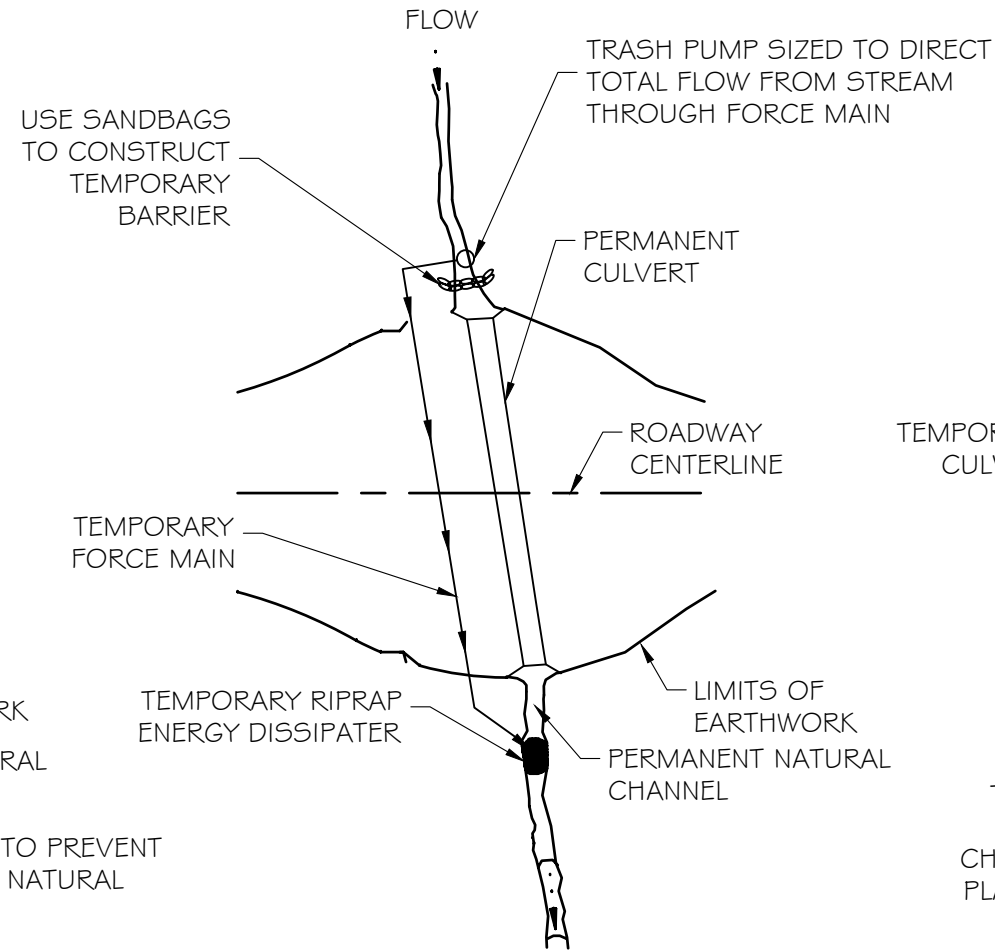
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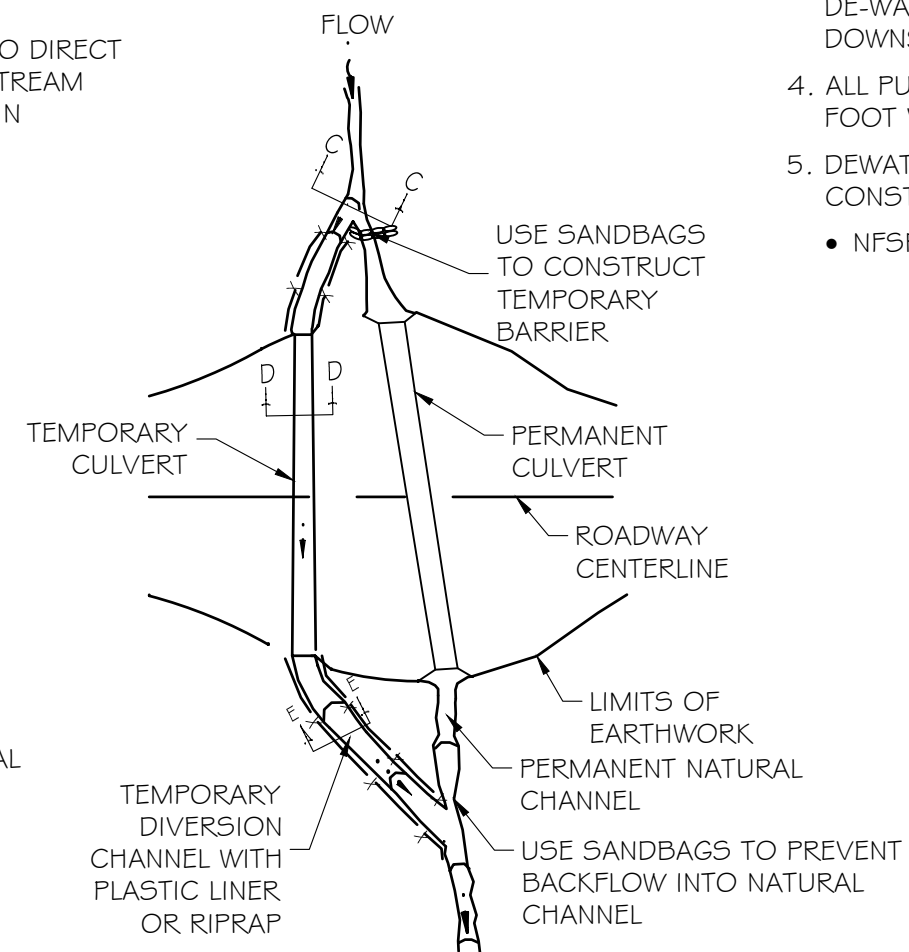
1. CONSTRUCT CHANNEL AT A MINIMUM GRADE OF 0.5%.
2. IF USING A PLASTIC LINER, DO NOT CONSTRUCT LONGITUDINAL JOINTS. BURY THE UPSTREAM EDGE OF THE LINER A MINIMUM OF 1-FT DEEP & SECURE WITH RIP RAP OR SANDBAGS.
3. PUMP WATER AS NECESSARY DURING EXCAVATION TO DOWNSTREAM PORTION OF STREAM. TRAP ANY FISH IN DE-WATERED AREA AND SAFELY MOVE DOWNSTREAM DURING PROCESS.
4. ALL PUMPS SHALL HAVE A SCREENED FOOT VALVE.
5. DEWATERING FLOWS DURING CONSTRUCTION:
  - NFSR 2050400 MP 0.16 - 1.0 CFS



PLAN - DIVERSION CHANNEL



PLAN - TRASH PUMP BYPASS



PLAN - TEMPORARY CULVERT DIVERSION

DESIGNED:	DATE:	DATE:	REVISION:	BY:
DRAWN: SJC	DATE: 1/25/05			
REVIEWED: M. WEINHOLD	DATE: 2/9/18			
TNFTYP: 09/04				

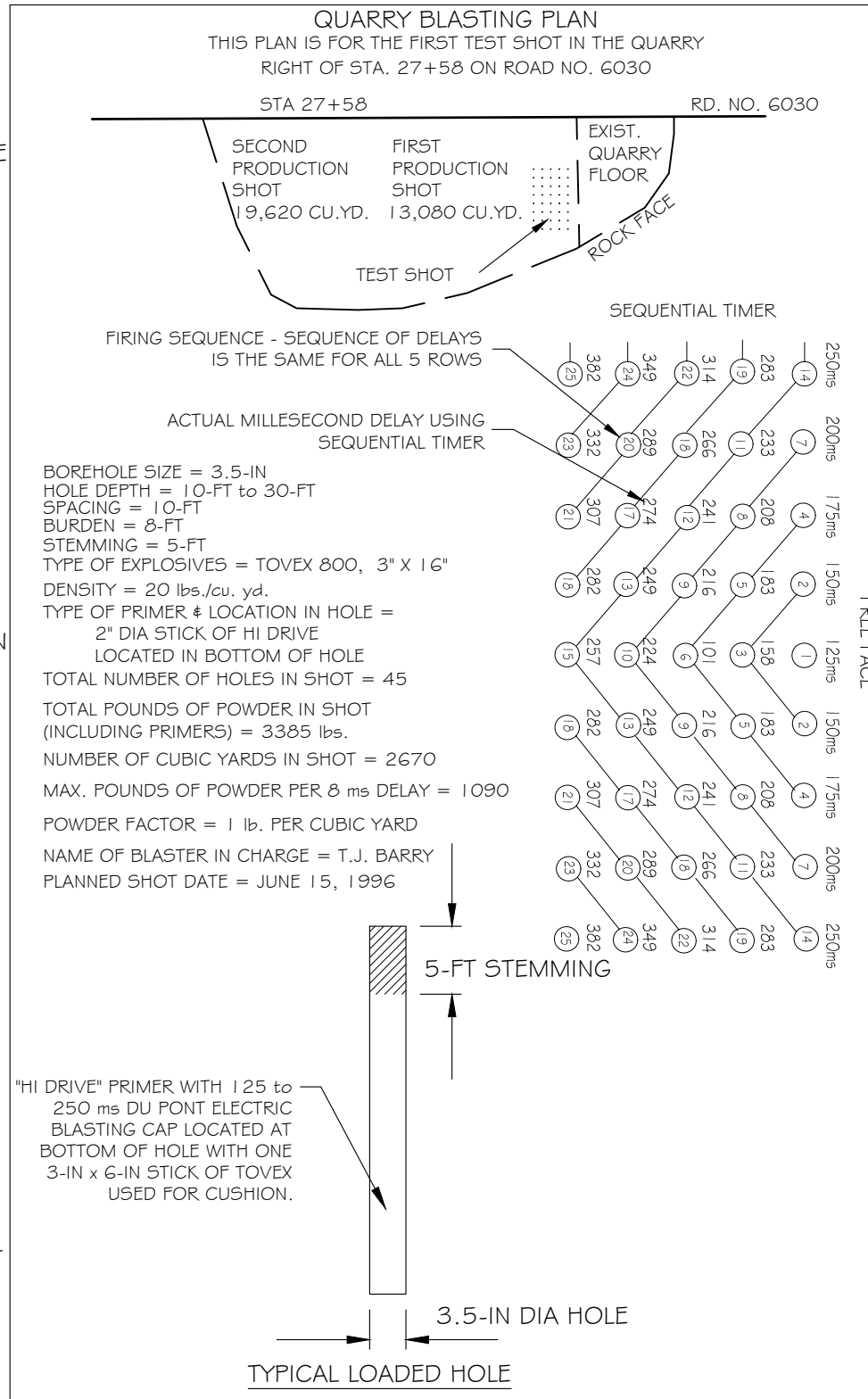


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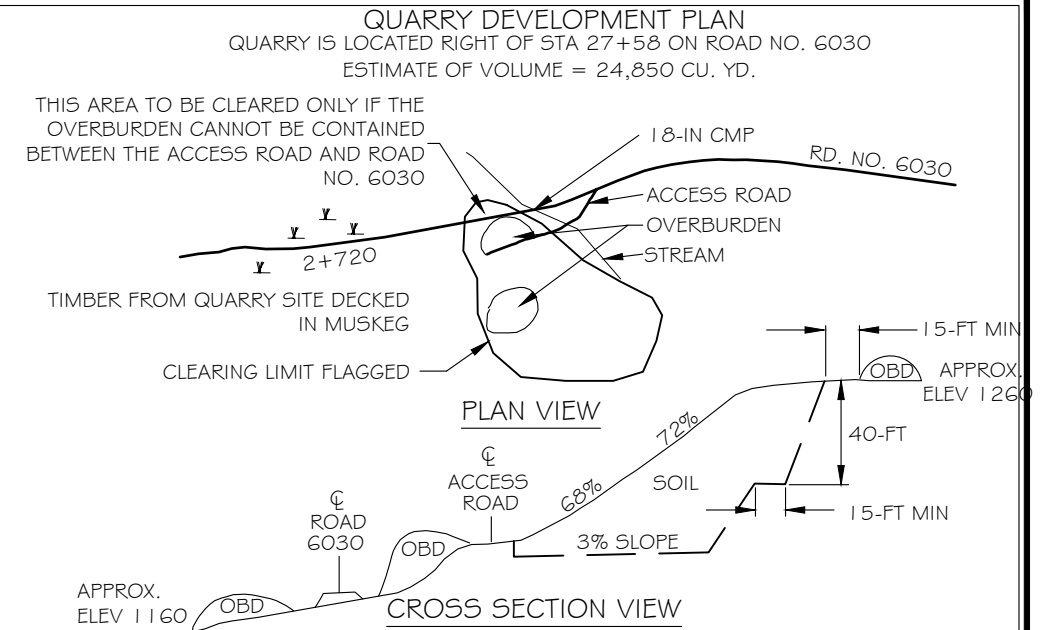
**PIT AND QUARRY DEVELOPMENT NOTES**

- ALL PITS AND QUARRIES SHALL BE APPROVED IN WRITING BY THE C.O. PRIOR TO EXPLORATION, CLEARING OR DEVELOPMENT. FOR QUARRY LOCATIONS, SEE KEY MAP ON SHEET 2.
- REMOVE ALL OVERBURDEN TO SOLID ROCK FOR A MINIMUM DISTANCE OF 15' FROM THE WORKING FACE.
- SLOPE THE CUT BANK OF THE OVERBURDEN TO THE NATURAL ANGLE OF REPOSE BUT IN NO CASE STEEPER THAN 1:1.
- WITHIN THE CLEARING LIMITS:
  - MAXIMUM STUMP HEIGHT SHALL BE IN ACCORDANCE WITH SPECIFICATION NO. 201.
  - STABLE TREES UP TO 6" dbh NEED NOT BE CUT IF THEY WILL NOT INTERFERE WITH BACK SLOPE STABILITY.
  - STUMPS AND BRUSH MAY BE LEFT IN PLACE, EXCEPT THAT ALL STUMPS THAT PROTRUDE FROM EXCAVATED BANKS OR THAT HAVE THE POTENTIAL TO BECOME DISLODGED AT ANY LATER DATE SHALL BE REMOVED.
- DISPOSE OF OR STOCKPILE FOR LATER USE ALL OVERBURDEN, CLEARING, MERCHANTABLE TIMBER AND GRUBBING DEBRIS AS SHOWN ON THE QUARRY DEVELOPMENT PLAN.
- FELL ALL DEAD TREES AND SNAGS WHICH ARE SUFFICIENTLY TALL TO REACH THE WORK AREA.
- LEAVE THE PIT/QUARRY IN A NEAT, ORDERLY AND WELL-DRAINED CONDITION. REMOVE ALL OVERHANGS AND LOOSE ROCK. ROCK LOOSENED BY BLASTING OPERATIONS SHALL BE SCALED FROM FACES PRIOR TO LEAVING THE SITE. MACHINE SCALING IS REQUIRED.
- AFTER EXCAVATION IS COMPLETE CLEAN THE AREA AND LEAVE AS SHOWN ON THE QUARRY DEVELOPMENT PLAN. TREAT ANY ACCESS ROAD AS SHOWN ON THE QUARRY DEVELOPMENT PLAN.
- NO MORE THAN 5% BY VOLUME OF OVERSIZE MATERIAL SHALL REMAIN IN THE QUARRY. ALL OTHER MATERIAL SHALL BE BROKEN DOWN AND USED AS SPECIFIED IN SPECIFICATIONS 203, 304, AND 611.
- SEED AND FERTILIZE ALL DISTURBED AREAS SUCH AS OVERBURDEN PILES AND BENCH SURFACES. SEEDING AND FERTILIZER IS INCIDENTAL TO PIT AND QUARRY DEVELOPMENT PLAN.
- PROVISIONS FOR FUTURE QUARRY DEVELOPMENT ACCESS WILL BE PROVIDED, UNLESS THIS REQUIREMENT IS WAVED BY THE CO.
- HAUL DISTANCES USED FOR HAUL CALCULATIONS FROM DESIGNATED SOURCES WILL BE BASED ON TABLE "POTENTIAL ROCK SOURCE LOCATIONS".

**SAMPLE QUARRY BLASTING PLAN**



**SAMPLE QUARRY DEVELOPMENT PLAN**



**DEVELOPMENT PLAN**

- ALL MERCHANTABLE TIMBER WILL BE REMOVED FROM THE QUARRY SITE AND DECKED IN THE MUSKEG LEFT OF 27+20
- OVERBURDEN WILL NOT BE PLACED IN THE SMALL STREAM BORDERING THE QUARRY.
- DEVELOPMENT WILL COMPLY WITH THE GENERAL NOTES SHOWN ON THE PIT & QUARRY DEVELOPMENT TYPICAL SHEET.
- TEST SHOT OF APPROX. 2000 CU. YD. IS PLANNED.

**REHABILITATION PLAN**

- THE ACCESS ROAD WILL BE OBLITERATED BY CUTTING A DITCH AT THE JUNCTION OF THE ACCESS ROAD WITH ROAD NO. 6030 AND BY ROUGHING UP THE ACCESS ROAD SURFACE.
- ALL OVERSIZE ROCK WILL BE PLACED AGAINST THE SIDES OF THE QUARRY NEXT TO THE BACKWALL BENCH.
- A MINIMUM OF 12-IN OF OVERBURDEN WILL BE EVENLY SPREAD OVER THE QUARRY FLOOR.
- ALL DISTURBED AREAS, SUCH AS OVERBURDEN PILES, BENCH SURFACES, AND ACCESS ROAD SURFACES, WILL BE SEEDED AND FERTILIZED IN ACCORDANCE WITH SPECIFICATIONS.
- PROVISIONS FOR FUTURE QUARRY ACCESS WILL BE PROVIDED UNLESS THIS REQUIREMENT IS WAVED BY THE COR.

CONTRACTOR	DATE	COR	DATE	DISTRICT RANGER	DATE

