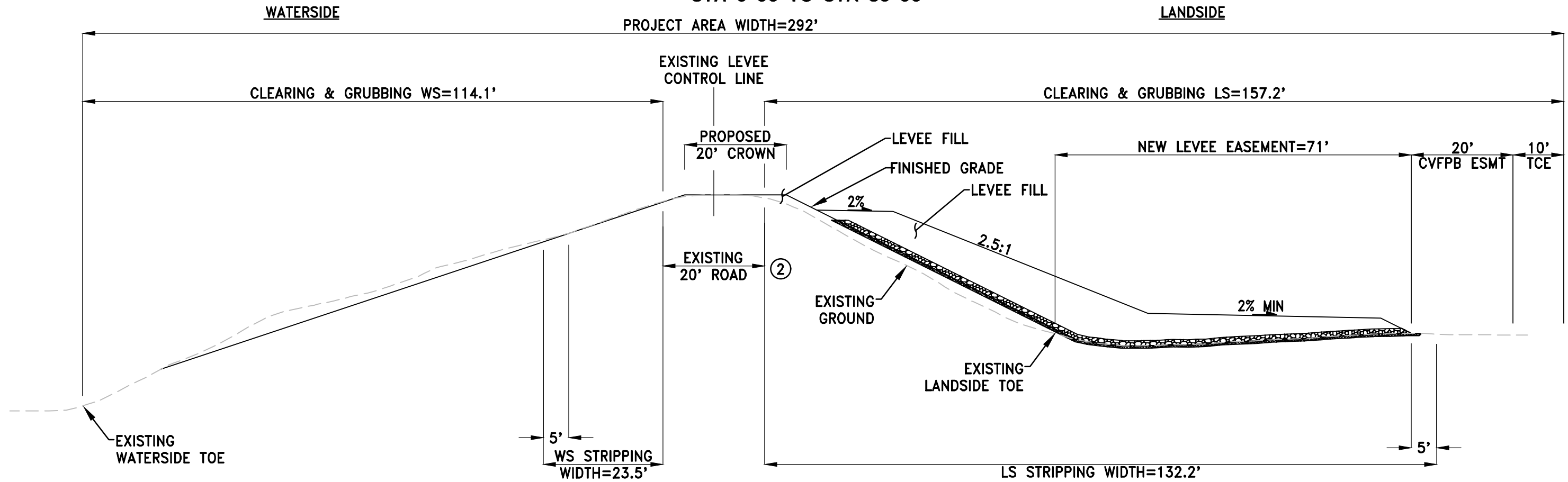


ATTACHMENT J
Cost Estimate Cross Sections

**BEAR RIVER EAST LEVEE REACH C
STA 0+00 TO STA 85+00**



LEVEE FILL AREA = 874 SF
 DRAIN ROCK AREA = 117 SF
 FILTER SAND AREA = 61 SF

60' WIDE COMBINATION SEEPAGE/STABILITY BERM W/ GEOMETRY FIX

SCALE: 1"=20'

NOTES

- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 20' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY
- ③ SEE FIGURE 4 FOR COMBINATION SEEPAGE/STABILITY BERM TYPICAL SECTION.
- ④ WATERSIDE ROCK SLOPE PROTECTION WAS RECOMMENDED FOR EROSION PROTECTION; HOWEVER, IT IS ASSUMED THAT EROSION WILL BE MITIGATED PER OTHER PROJECTS.

LEGEND	
	EXISTING GROUND
	FINISHED GRADE
	DRAIN ROCK
	FILTER SAND

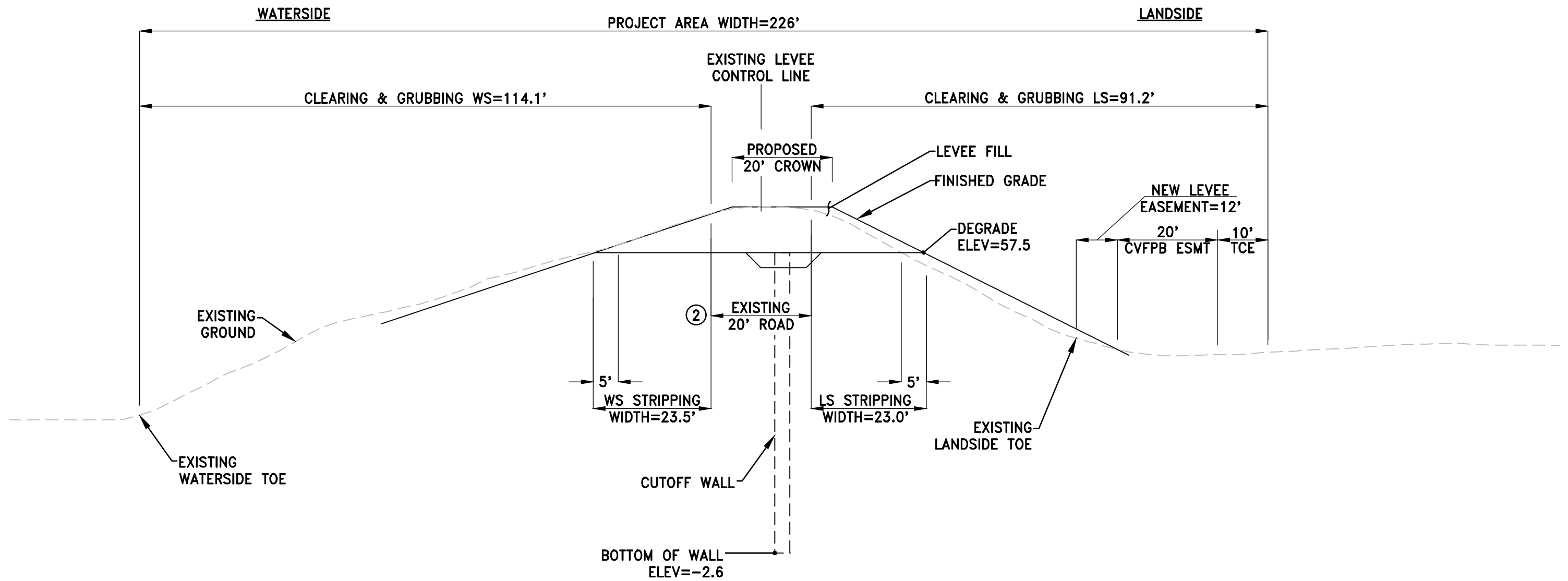
**RIO OSO FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

BEAR RIVER EAST LEVEE REACH C
 60' WIDE COMBINATION SEEPAGE/STABILITY BERM
 QUANTITY ESTIMATE CROSS SECTION



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**BEAR RIVER EAST LEVEE REACH C
STA 0+00 TO STA 85+00**



1/3 LEVEE DEGRADE AREA = 356 SF
 CUTOFF TRENCH AREA = 24 SF
 LEVEE FILL AREA = 595 SF

60' DEEP SEEPAGE CUTOFF WALL W/ GEOMETRY FIX

SCALE: 1"=20'

NOTES


- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 20' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY.
- ③ SEE FIGURE 5 FOR SEEPAGE CUTOFF WALL TYPICAL SECTION.
- ④ WATERSIDE ROCK SLOPE PROTECTION WAS RECOMMENDED FOR EROSION PROTECTION; HOWEVER, IT IS ASSUMED THAT EROSION WILL BE MITIGATED PER OTHER PROJECTS.

LEGEND

- EXISTING GROUND
- FINISHED GRADE
- CUTOFF WALL EXCAVATION
- CUTOFF WALL

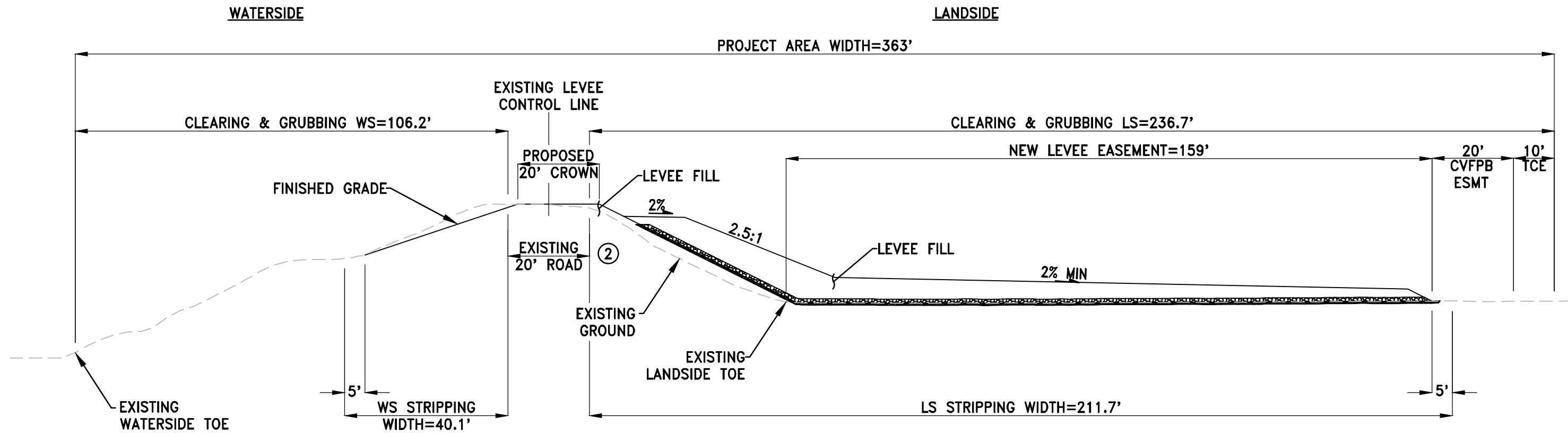
**NICOLAUS FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

BEAR RIVER EAST LEVEE REACH C
 60' DEEP SEEPAGE CUTOFF WALL
 QUANTITY ESTIMATE CROSS SECTION



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**BEAR RIVER REACH B
BEAR RIVER EAST LEVEE STA 85+00 TO STA 130+72
YANKEE SLOUGH SOUTH LEVEE STA 0+00 TO STA 4+64**



LEVEE FILL AREA = 1058 SF
DRAIN ROCK AREA = 197 SF
FILTER SAND AREA = 101 SF

150' WIDE COMBINATION SEEPAGE/STABILITY BERM W/ GEOMETRY FIX

SCALE: 1"=25'

NOTES

- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 20' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY.
- ③ SEE FIGURE 4 FOR COMBINATION SEEPAGE/STABILITY BERM TYPICAL SECTION.
- ④ WATERSIDE ROCK SLOPE PROTECTION WAS RECOMMENDED FOR EROSION PROTECTION; HOWEVER, IT IS ASSUMED THAT EROSION WILL BE MITIGATED PER OTHER PROJECTS.

LEGEND

- EXISTING GROUND
- FINISHED GRADE
- ▨ DRAIN ROCK
- ▩ FILTER SAND

**RIO OSO FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

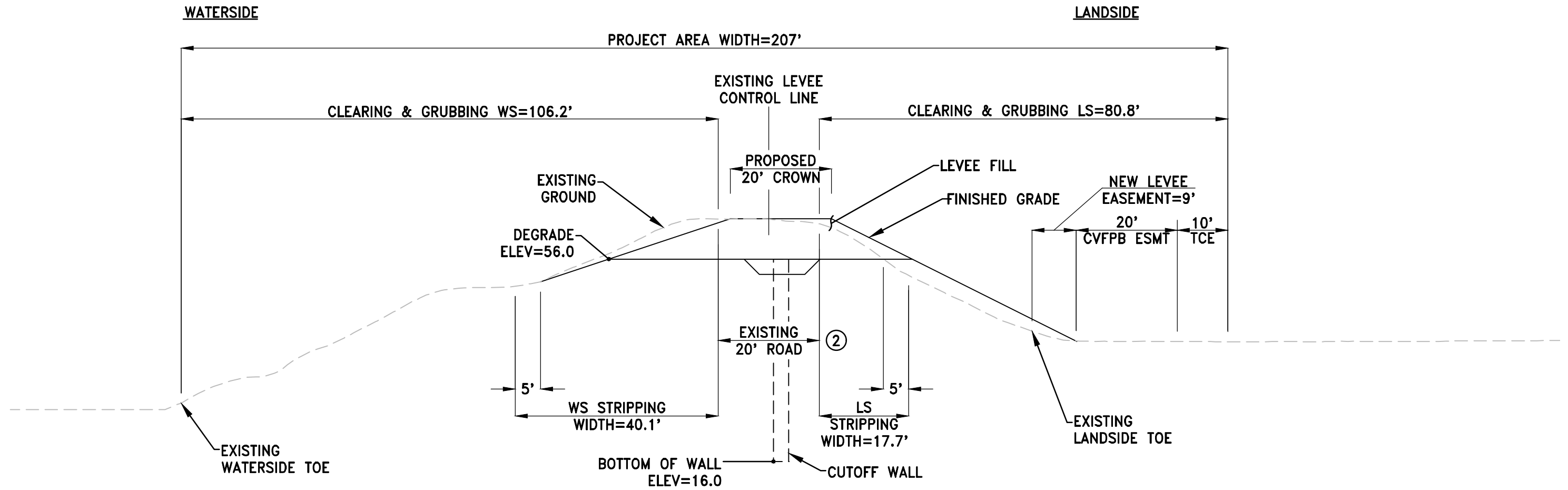
BEAR RIVER EAST LEVEE REACH B
150' WIDE COMBINATION SEEPAGE/STABILITY BERM
QUANTITY ESTIMATE CROSS SECTION



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**BEAR RIVER REACH B
BEAR RIVER EAST LEVEE STA 85+00 TO STA 130+72
YANKEE SLOUGH SOUTH LEVEE STA 0+00 TO STA 4+64**



1/3 LEVEE DEGRADE AREA = 329 SF
CUTOFF TRENCH AREA = 24 SF
LEVEE FILL AREA = 495 SF

40' DEEP SEEPAGE CUTOFF WALL W/ GEOMETRY FIX

SCALE: 1"=20'

NOTES

- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 20' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY.
- ③ SEE FIGURE 5 FOR SEEPAGE CUTOFF WALL TYPICAL SECTION.

LEGEND

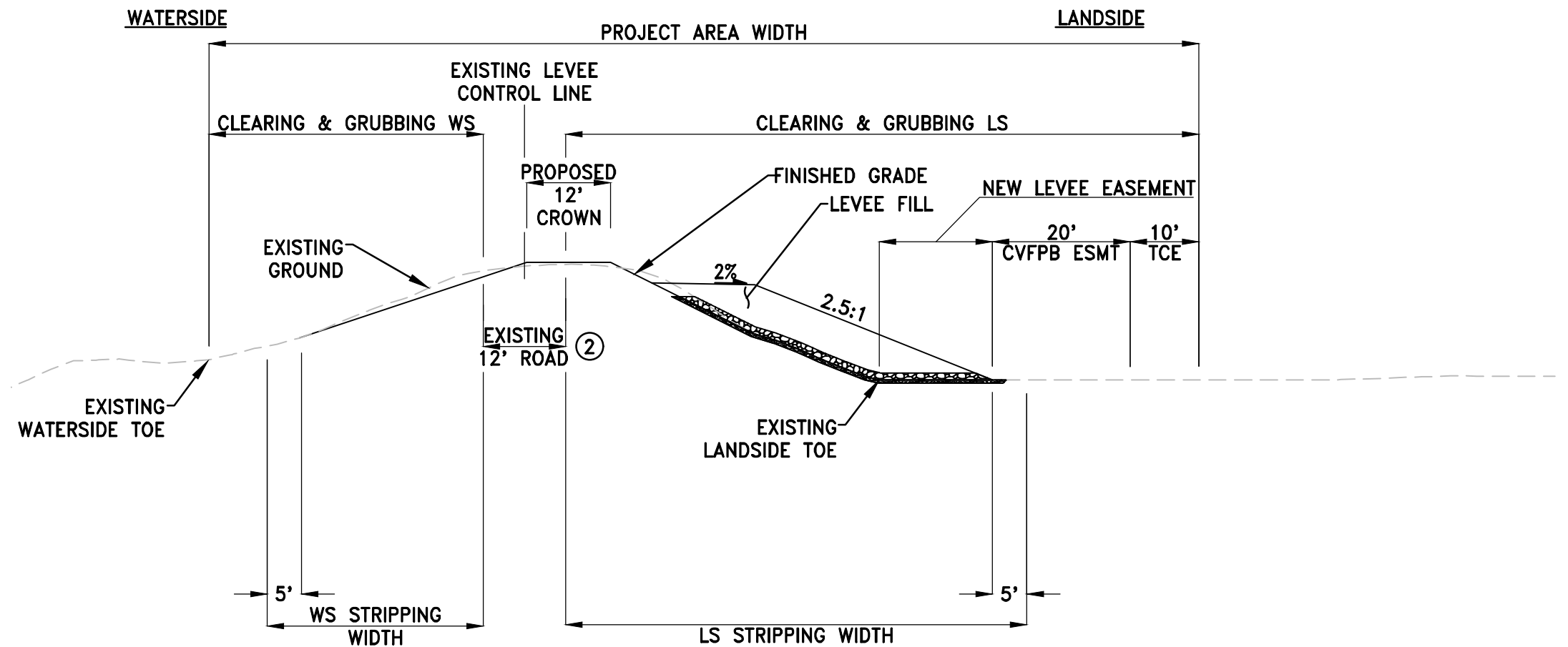
- EXISTING GROUND
- FINISHED GRADE
- CUTOFF WALL EXCAVATION
- CUTOFF WALL

**NICOLAUS FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

BEAR RIVER EAST LEVEE REACH B
40' DEEP SEEPAGE CUTOFF WALL
QUANTITY ESTIMATE CROSS SECTION

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**YANKEE SLOUGH SOUTH LEVEE
REACH A.1: STA 4+64 TO STA 38+30
REACH A.2: STA 38+30 TO STA 231+17**



YANKEE SLOUGH REACH A.1

NEW LEVEE EASEMENT = 18 FT
 LS STRIPPING WIDTH = 95.1 FT
 WS STRIPPING WIDTH = 51.7 FT
 CLEARING & GRUBBING LS = 120.1 FT
 CLEARING & GRUBBING WS = 46.7 FT
 PROJECT AREA WIDTH AREA = 179 FT
 LEVEE FILL AREA = 353 SF
 DRAIN ROCK AREA = 46 SF
 FILTER SAND AREA = 26 SF

YANKEE SLOUGH REACH A.2

NEW LEVEE EASEMENT = 17 FT
 LS STRIPPING WIDTH = 31.5 FT
 WS STRIPPING WIDTH = 67.1 FT
 CLEARING & GRUBBING LS = 39.9 FT
 CLEARING & GRUBBING WS = 92.1 FT
 PROJECT AREA WIDTH AREA = 145 FT
 LEVEE FILL AREA = 344 SF
 DRAIN ROCK AREA = 46 SF
 FILTER SAND AREA = 26 SF

15' WIDE DRAINED STABILITY BERM W/ GEOMETRY FIX

SCALE: N.T.S.

NOTES

- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 12' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY
- ③ SEE FIGURE 6 FOR DRAINED STABILITY BERM TYPICAL SECTION.

LEGEND

- EXISTING GROUND
- FINISHED GRADE
- ▨ DRAIN ROCK
- ▩ FILTER SAND

**RIO OSO FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

YANKEE SLOUGH S LEVEE REACHES A.1 & A.2
15' WIDE DRAINED STABILITY BERM
QUANTITY ESTIMATE CROSS SECTION

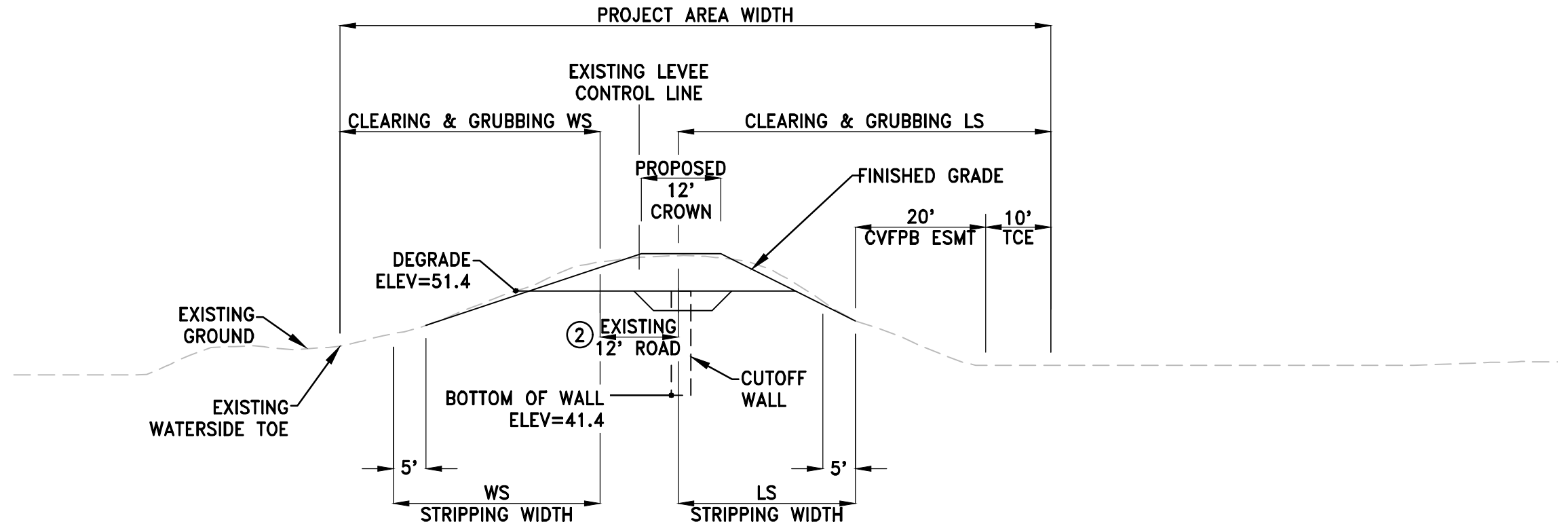


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**YANKEE SLOUGH SOUTH LEVEE
REACH A.1: STA 4+64 TO STA 38+30
REACH A.2: STA 38+30 TO STA 231+17**

WATERSIDE

LANDSIDE



YANKEE SLOUGH REACH A.1

LS STRIPPING WIDTH = 55.7 FT
 WS STRIPPING WIDTH = 51.7 FT
 CLEARING & GRUBBING LS = 95.2 FT
 CLEARING & GRUBBING WS = 46.7 FT
 PROJECT AREA WIDTH = 154 FT
 DEGRADE ELEV = 57.6
 BOTTOM OF WALL ELEV = 41.6
 1/3 LEVEE DEGRADE AREA = 326 SF
 CUTOFF TRENCH AREA = 24 SF
 LEVEE FILL AREA = 399 SF

YANKEE SLOUGH REACH A.2

LS STRIPPING WIDTH = 24.8 FT
 WS STRIPPING WIDTH = 31.7 FT
 CLEARING & GRUBBING LS = 57.2 FT
 CLEARING & GRUBBING WS = 39.9 FT
 PROJECT AREA WIDTH = 110 FT
 DEGRADE ELEV = 57.4
 BOTTOM OF WALL ELEV = 41.4
 1/3 LEVEE DEGRADE AREA = 171 SF
 CUTOFF TRENCH AREA = 24 SF
 LEVEE FILL AREA = 283 SF

16' DEEP SEEPAGE CUTOFF WALL W/ GEOMETRY FIX

SCALE: 1"=20'

NOTES

- ① EXISTING GROUND SURFACE USES CVFED LIDAR DATA (2008)
- ② EXISTING 20' PATROL ROAD NOT INCLUDED IN STRIPPING AND CLEARING & GRUBBING WIDTHS. PATROL ROAD WIDTH IS ESTIMATED PER AVAILABLE AS-BUILT INFORMATION. ACTUAL PATROL ROAD WIDTH MAY VARY.
- ③ SEE FIGURE 5 FOR SEEPAGE CUTOFF WALL TYPICAL SECTION.

LEGEND

- EXISTING GROUND
- FINISHED GRADE
- CUTOFF WALL EXCAVATION
- CUTOFF WALL



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**NICOLAUS FLOOD RISK REDUCTION
PROGRAM FEASIBILITY STUDY**

YANKEE SLOUGH S LEVEE REACH REACH A.1-A.2
 16' DEEP SEEPAGE CUTOFF WALL
 QUANTITY ESTIMATE CROSS SECTION