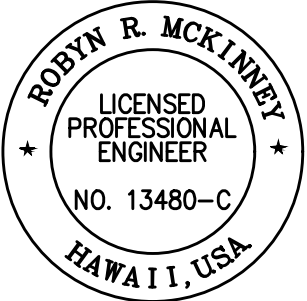


C:_CIVIL 3D PROJECTS\2012_153,000 KEAAU-PAHOA RD IMPR RTE130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKU\056 - 057 FIRELINE PNP.DWG 8/25/2020 7:02 PM SPODELAS

FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	56	116

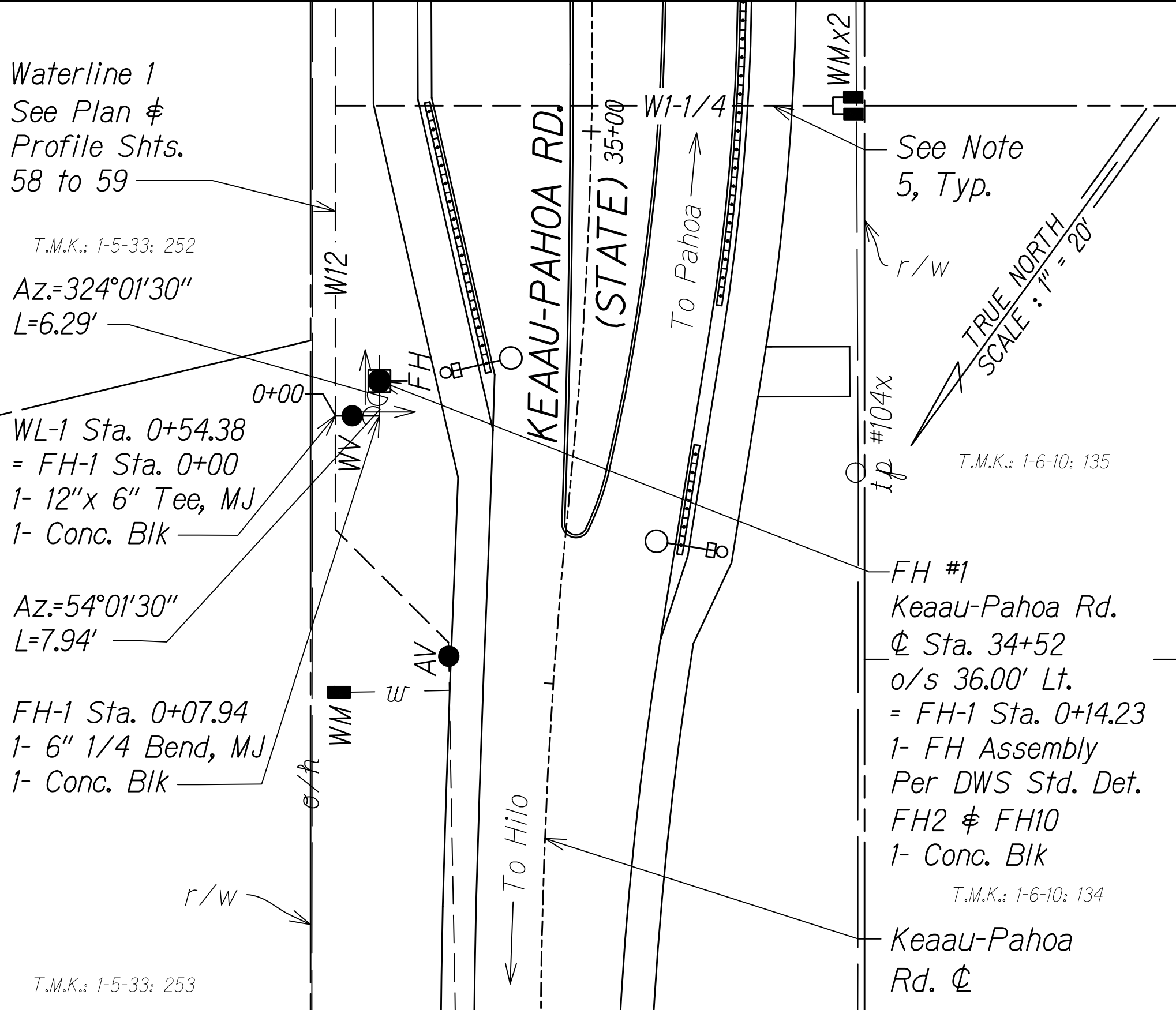
NOTES:

1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
2. Minimum cover shall be 3 feet.
3. For fire hydrant markers see Shts. 68 and 70.
4. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
5. Field locate and verify all exist. water service laterals.



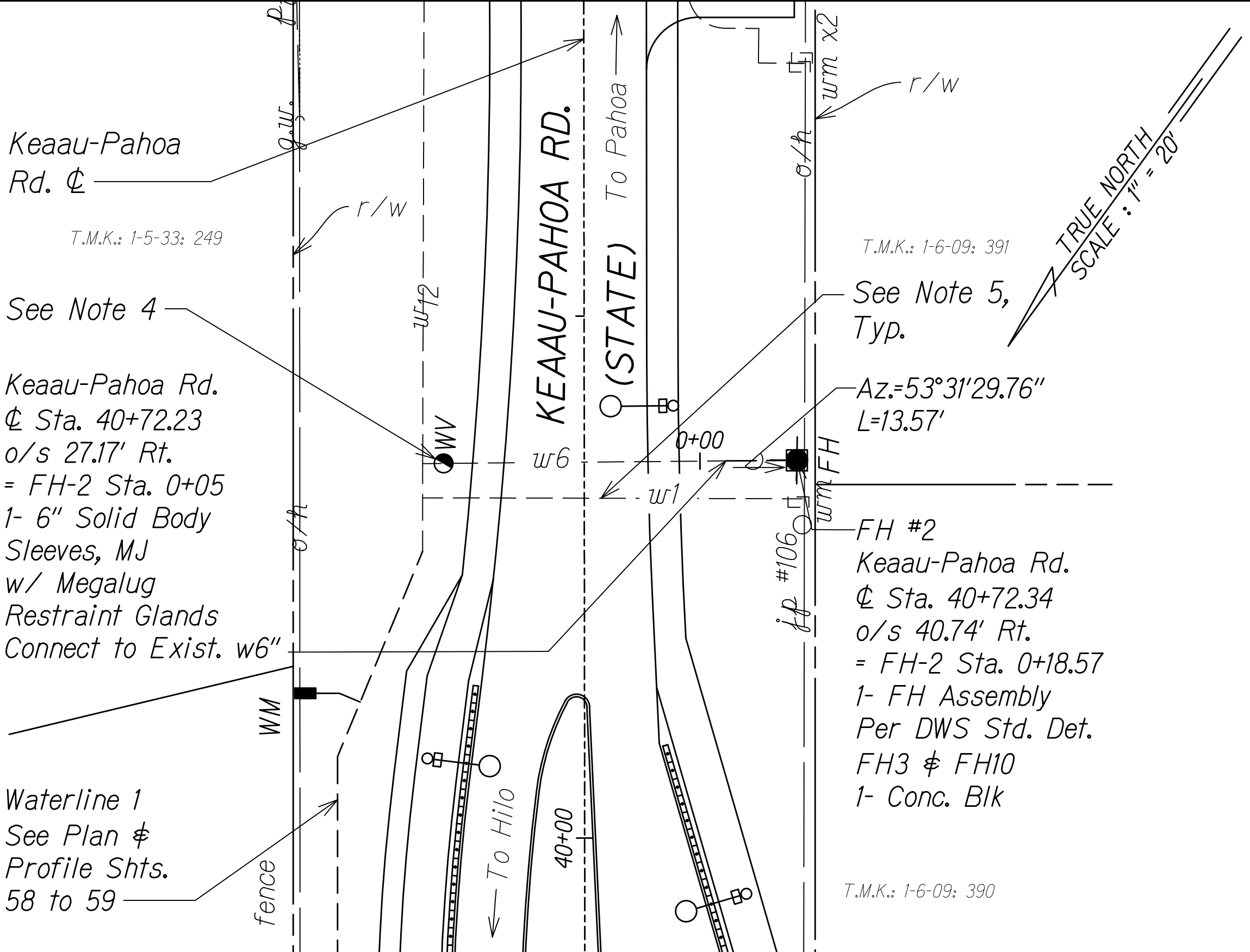
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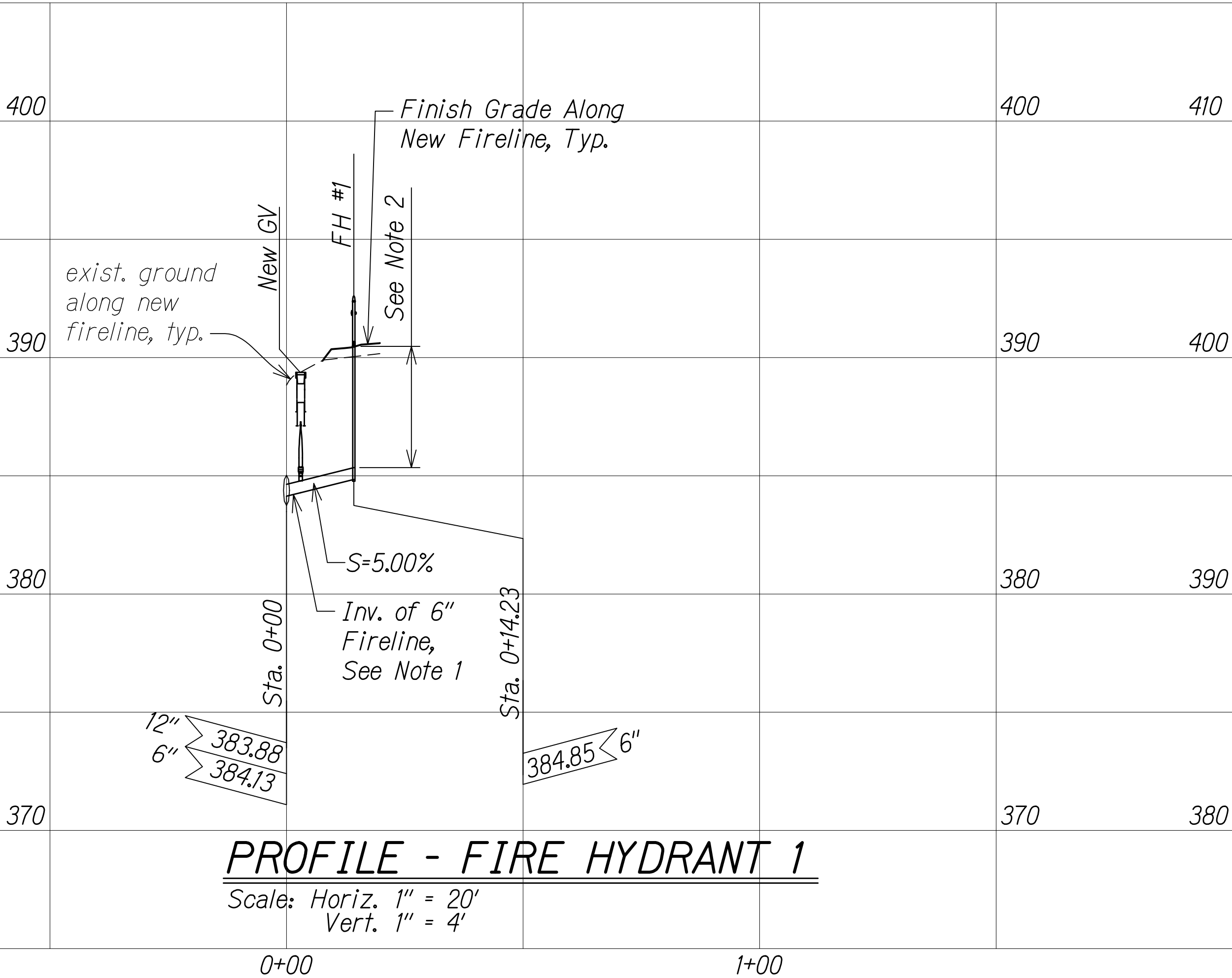
PLAN - FIRE HYDRANT 1

Scale: 1" = 20'



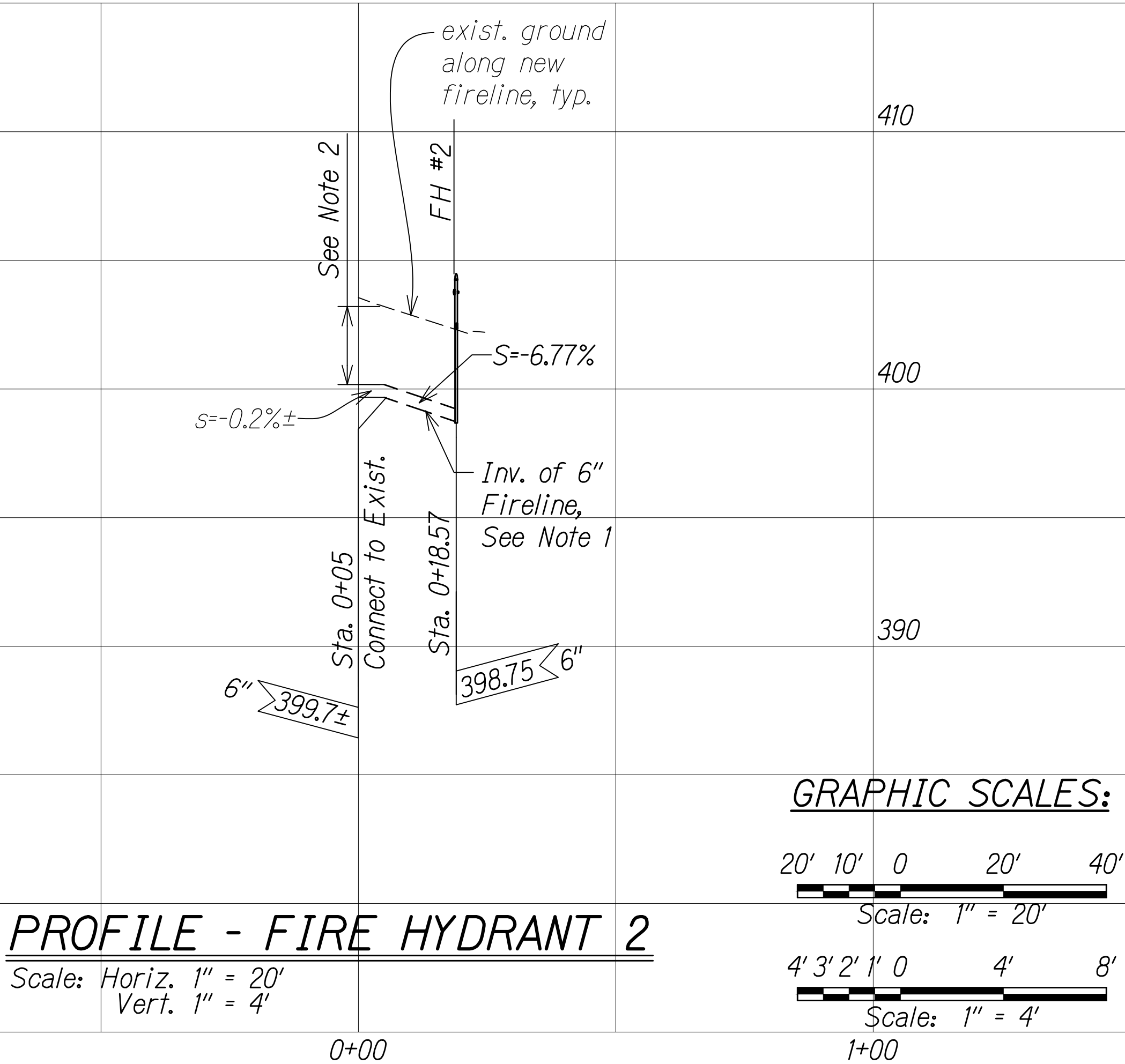
PLAN - FIRE HYDRANT 2

Scale: 1" = 20'



PROFILE - FIRE HYDRANT 1

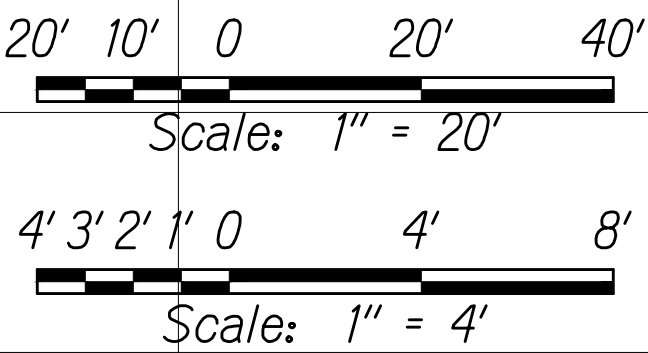
Scale: Horiz. 1" = 20'
Vert. 1" = 4'



PROFILE - FIRE HYDRANT 2

Scale: Horiz. 1" = 20'
Vert. 1" = 4'

GRAPHIC SCALES:

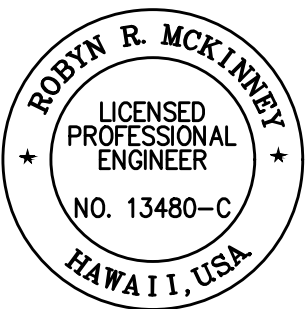


C:\CIVIL 3D PROJECTS\2012_153.000_KEAAU-PAHOA RD IMPR RTE130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKU\056 - 057 FIRELINE PNP.DWG 8/26/2020 12:03 PM SRODELAS

FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	57	116

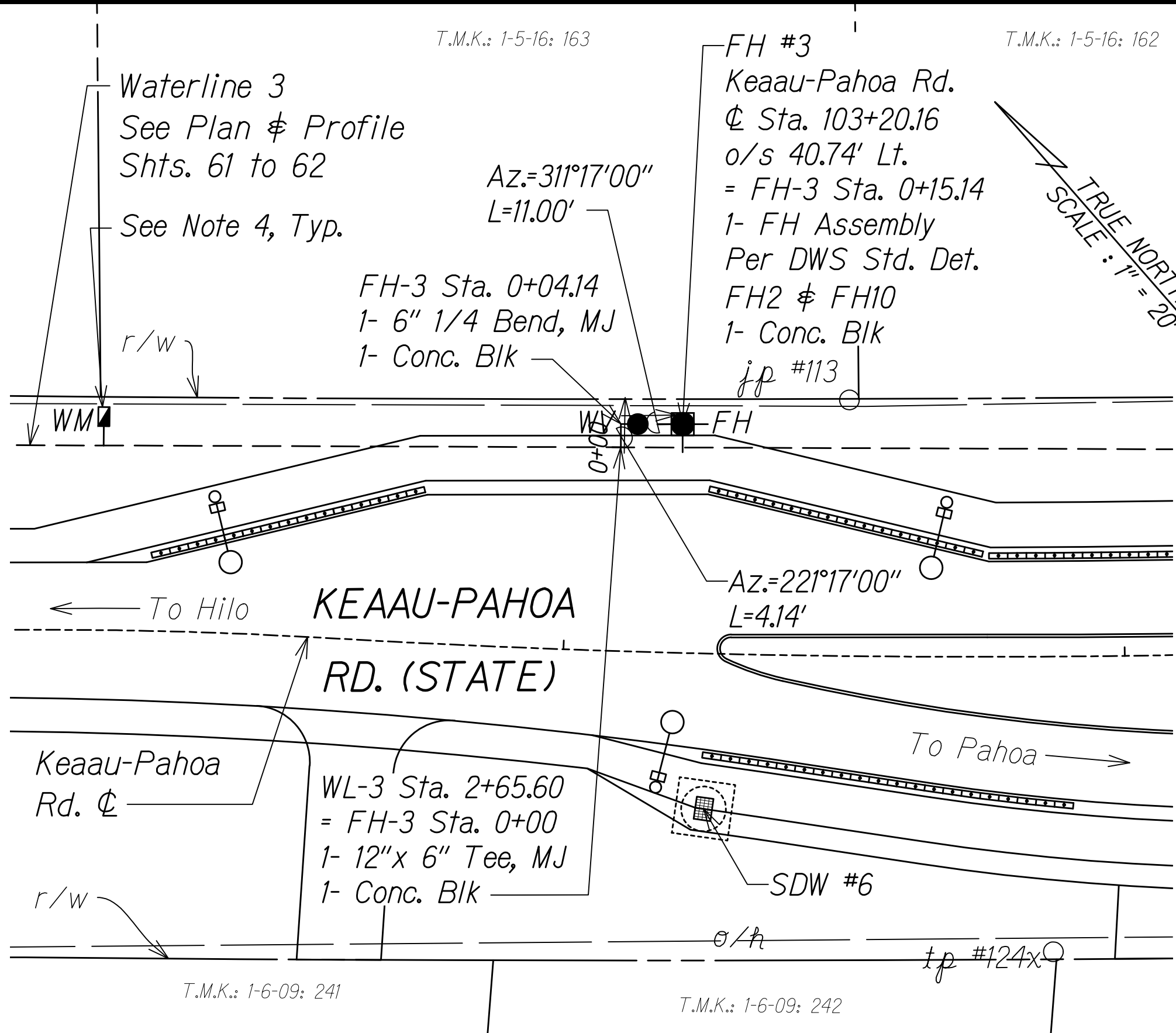
NOTES:

1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
2. Minimum cover shall be 3 feet.
3. For fire hydrant markers see Shts. 71 and 73.
4. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
5. Field locate and verify all exist. water service laterals.



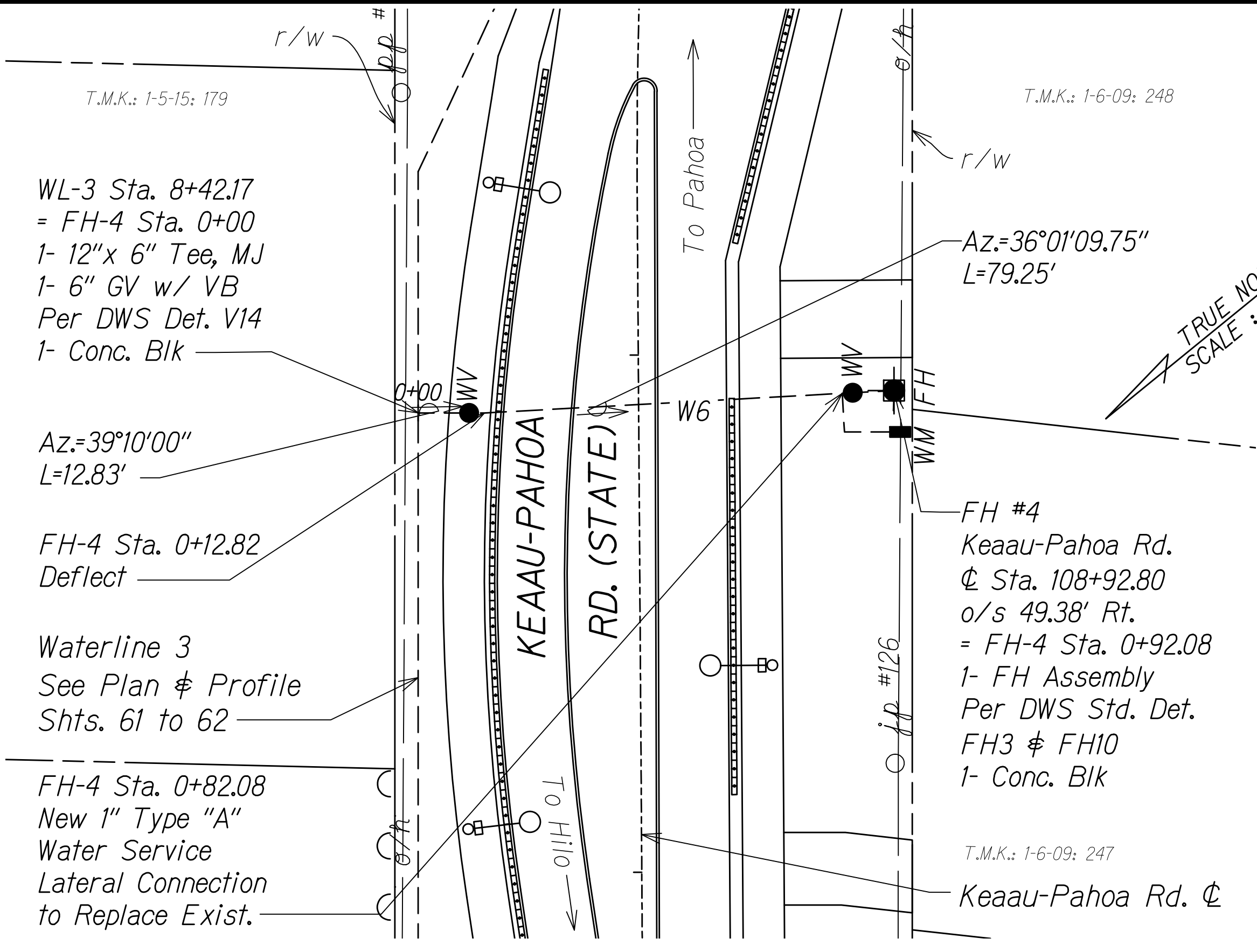
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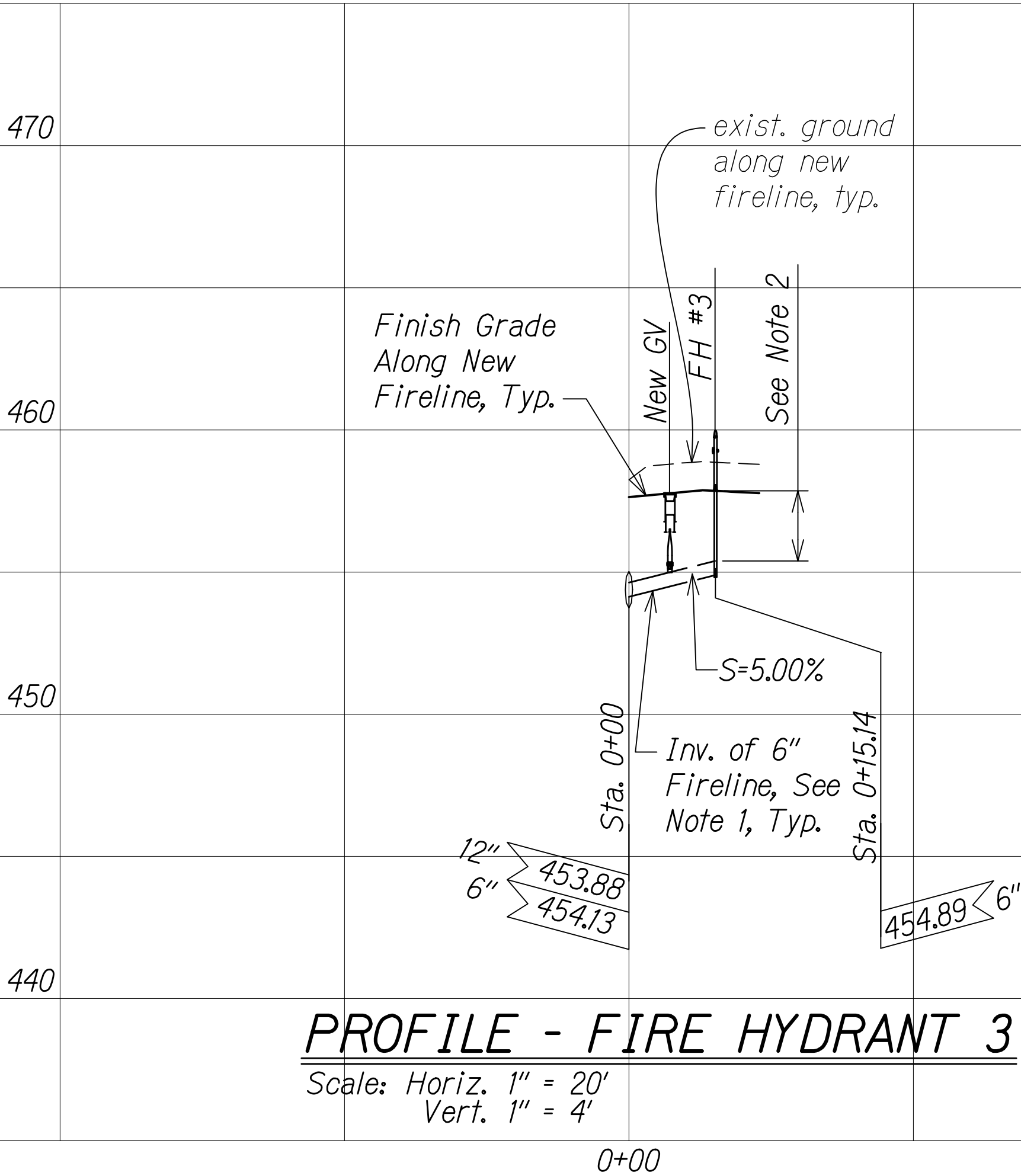
PLAN - FIRE HYDRANT 3

Scale: 1" = 20'



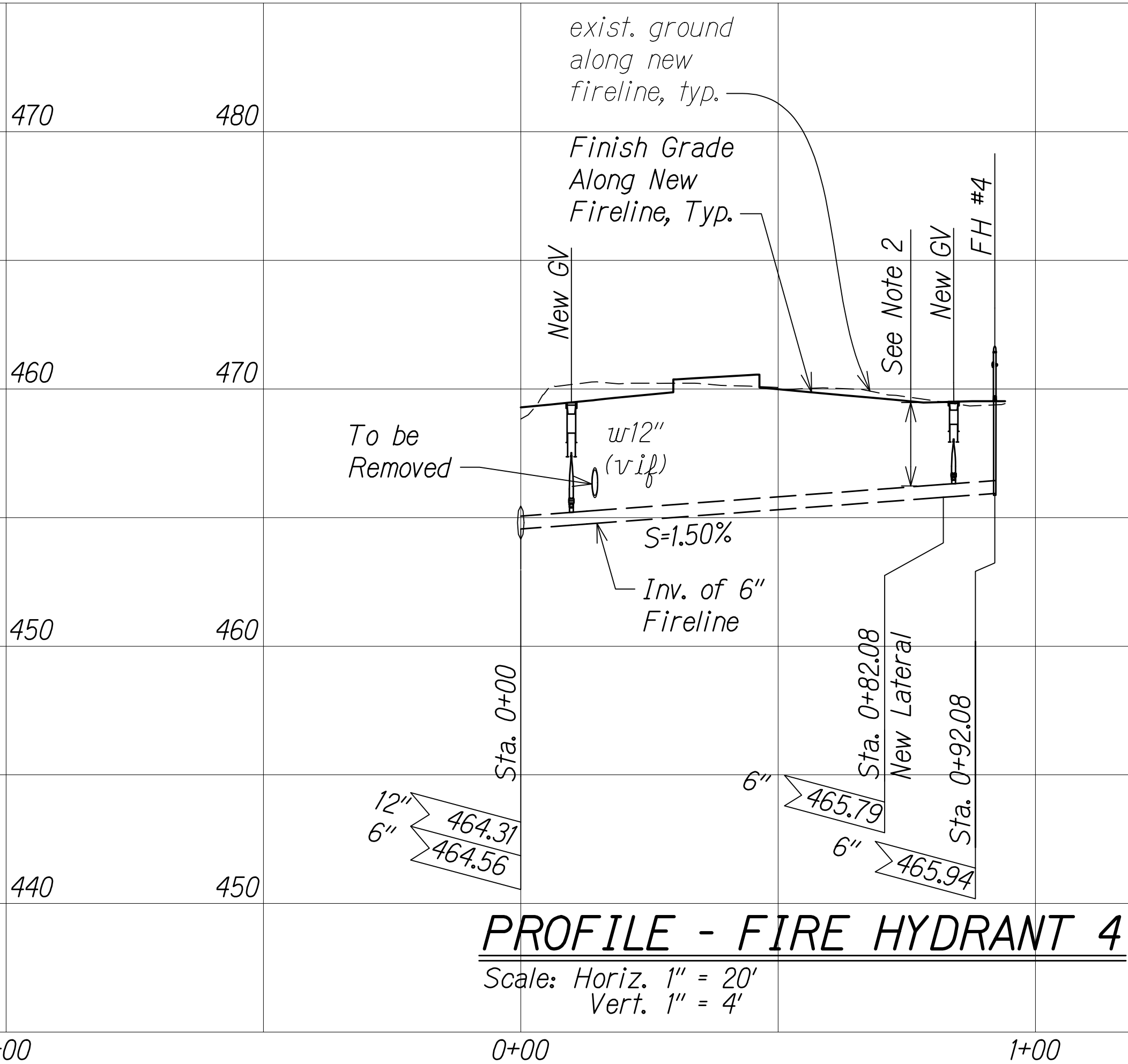
PLAN - FIRE HYDRANT 4

Scale: 1" = 20'



PROFILE - FIRE HYDRANT 3

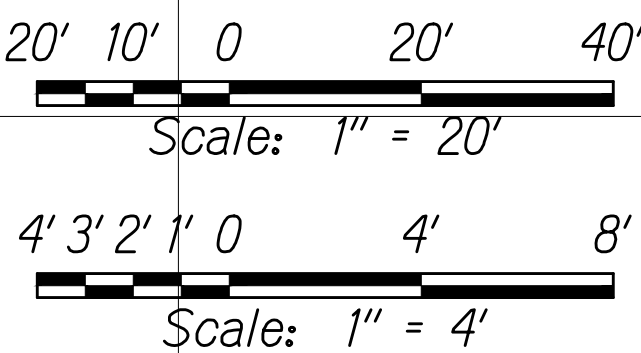
Scale: Horiz. 1" = 20'
Vert. 1" = 4'



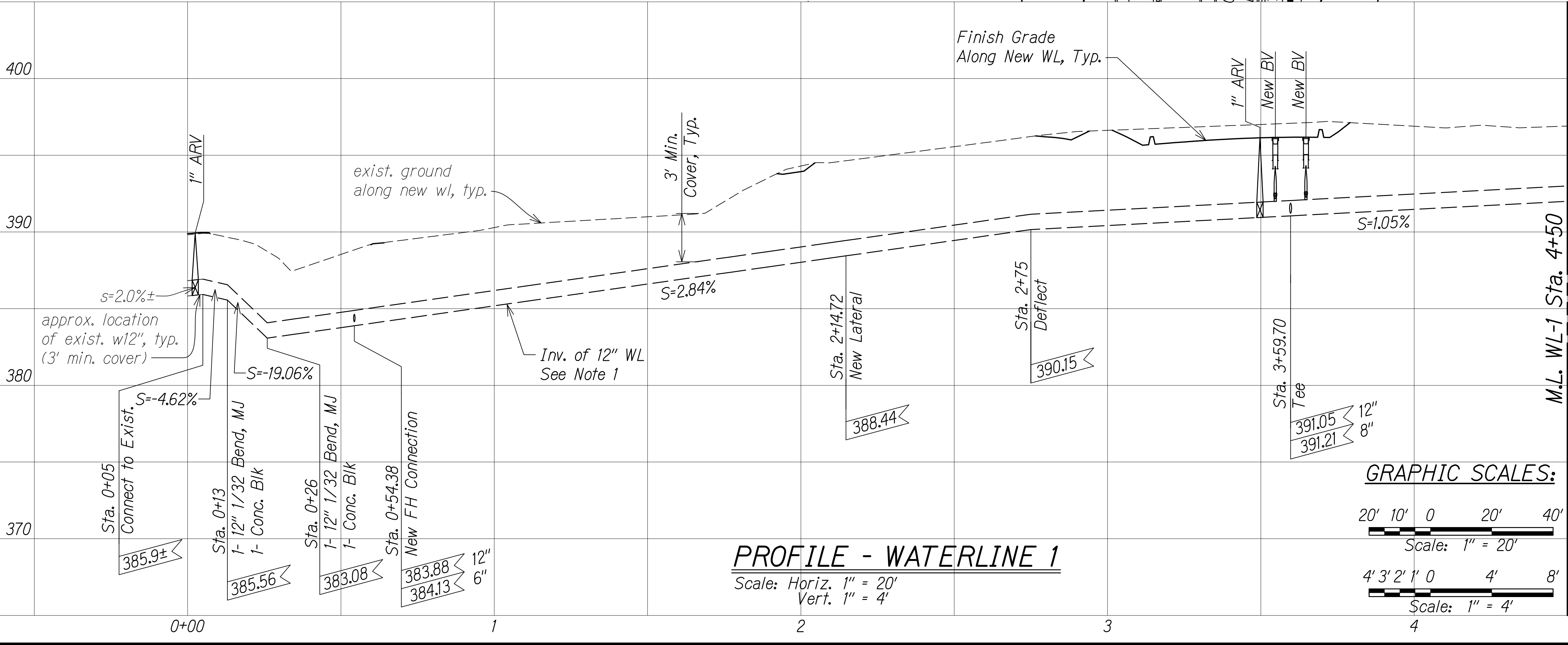
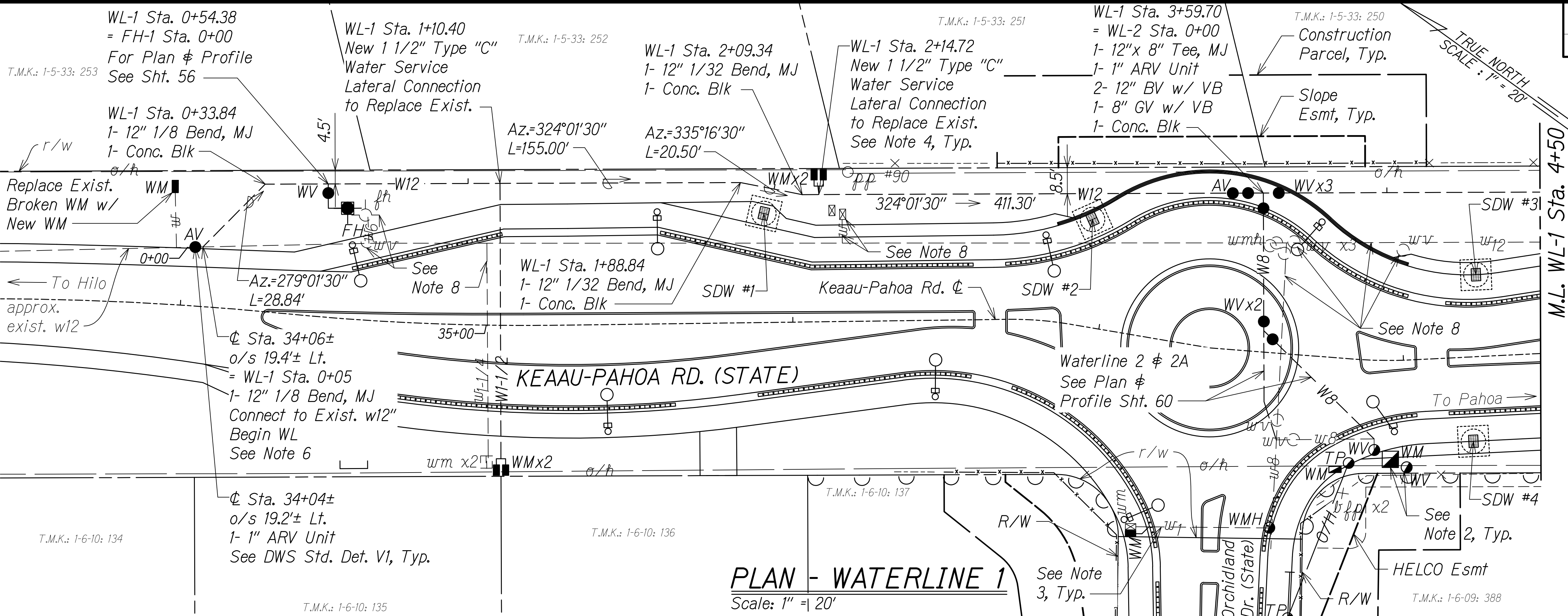
PROFILE - FIRE HYDRANT 4

Scale: Horiz. 1" = 20'
Vert. 1" = 4'

GRAPHIC SCALES:

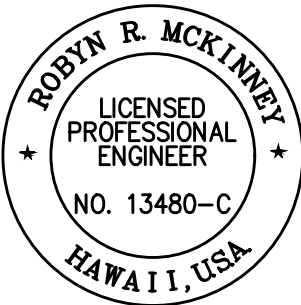


C:_CIVIL_3D_PROJECTS\2012_153.000_KEAAU-PAHOA RD IMPR RTE130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKU\058 - 059 WATERLINE ENP.DWG 9/1/2020 5:06 PM SRODELAS



FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	58	116

- NOTES:**
1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
 2. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
 3. Field locate and verify all exist. water service laterals.
 4. For new service lateral connection, see DWS Std. Det. L7, L8, L9 and L10.

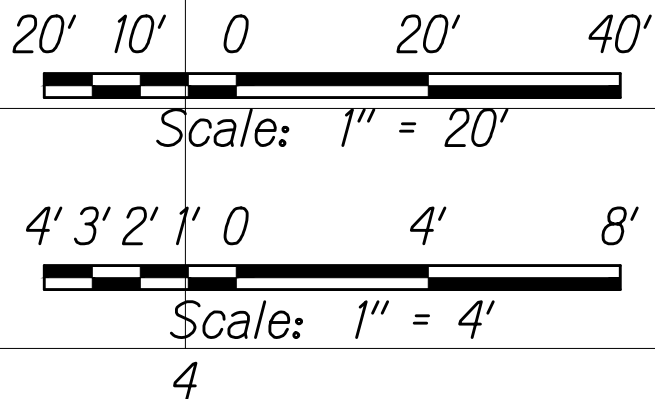


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5. Valve box for 2.5" to 8" GVs, see DWS Std. Det. V14. Valve box for BVs, see DWS Std. Det. V15.
6. At connection to exist. w12" or w8", Install: Bend w/ Megalug Restraint Glands 1- 12" or 8" Solid Body Sleeves w/ Megalug Restraint Glands Necessary 12" or 8" DI Pipe Nipples 1- Conc. Blk
7. All & stations are based from Keaa-Pahoa Rd. &.
8. Contractor shall salvage exist. FH for DWS and shall remove exist. water mains, lateral lines, WVs, WMHs and WMs to be replaced with new prior to installation of new street light poles.

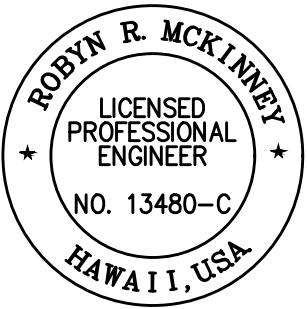
GRAPHIC SCALES:



FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	59	116

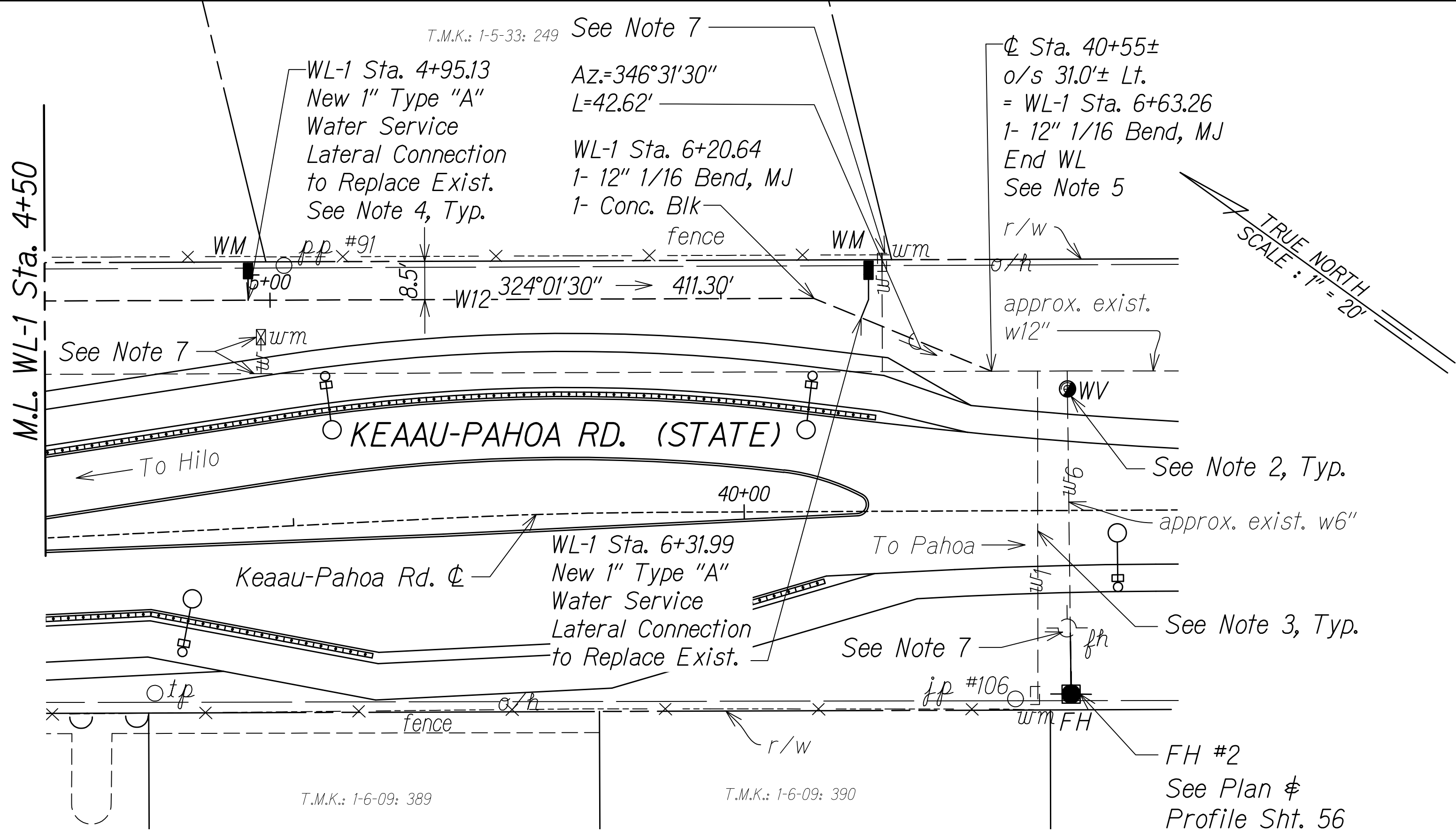
NOTES:

1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
2. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
3. Field locate and verify all exist. water service laterals.
4. For new service lateral connection, see DWS Std. Det. L7, L8, L9 and L10.
5. At connection to exist., Install:
Bend w/ Megalug Restraint Glands
1- 12" Solid Body Sleeves w/ Megalug Restraint Glands
Necessary 12" DI Pipe Nipples
1- Conc. Blk
6. All ϕ stations are based from Keaau-Pahoa Rd. ϕ .
7. Contractor shall salvage exist. FH for DWS and shall remove exist. water mains, lateral lines, WVs, WMHs and WMs to be replaced with new prior to installation of new street light poles.



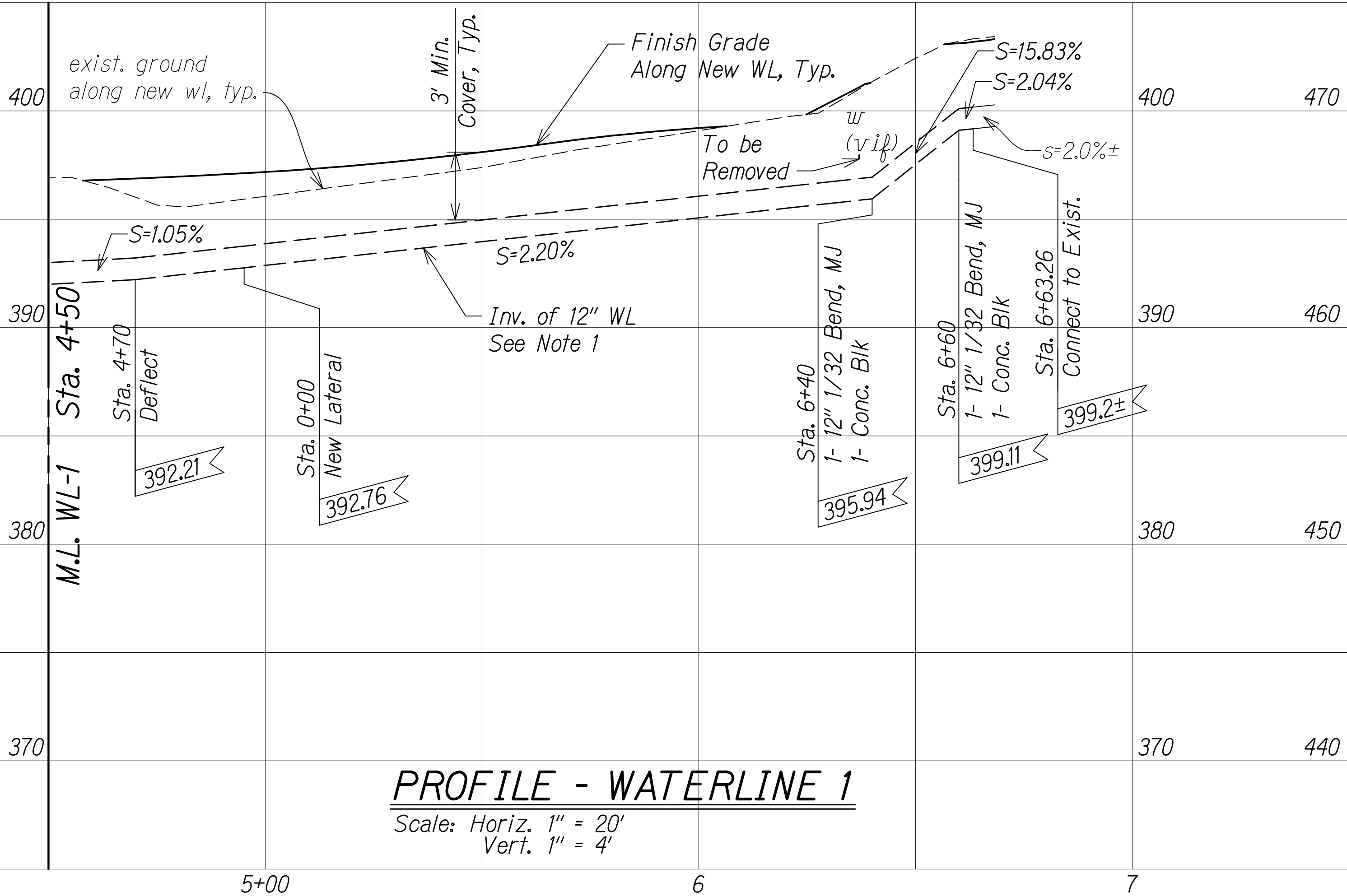
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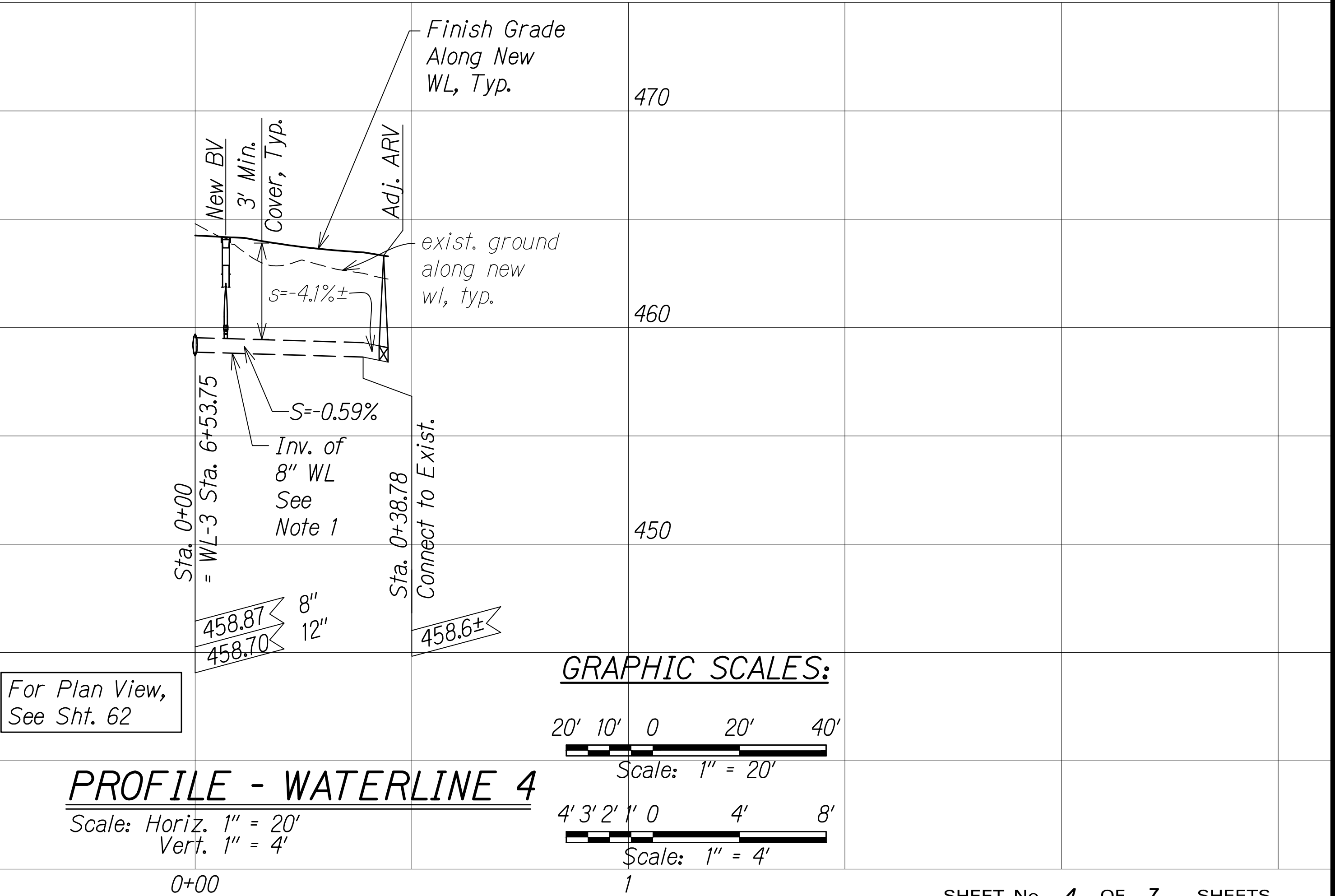
PLAN - WATERLINE 1

Scale: 1" = 20'



PROFILE - WATERLINE 1

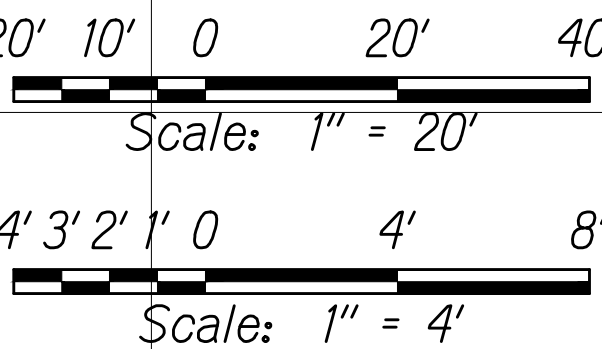
Scale: Horiz. 1" = 20'
Vert. 1" = 4'



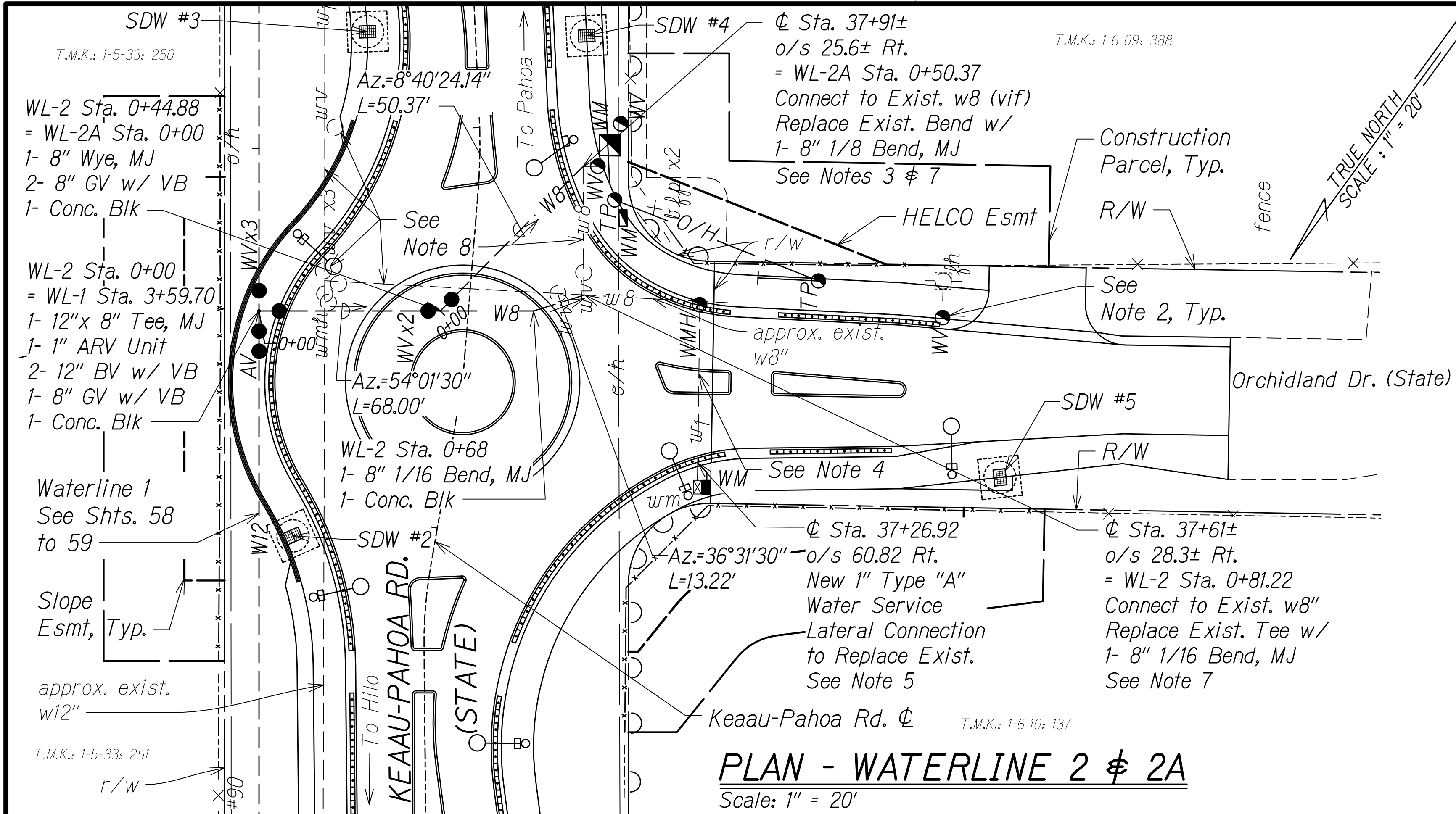
PROFILE - WATERLINE 4

Scale: Horiz. 1" = 20'
Vert. 1" = 4'

GRAPHIC SCALES:

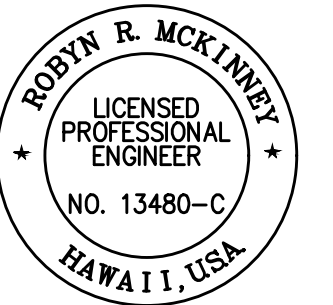


C:\CIVIL 3D PROJECTS\2012_153.000_KEAAU-PAHOA RD IMPR RTE130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKU\060 - 062 WATERLINE ENP.DWG 9/1/2020 1:59 PM SRODELAS



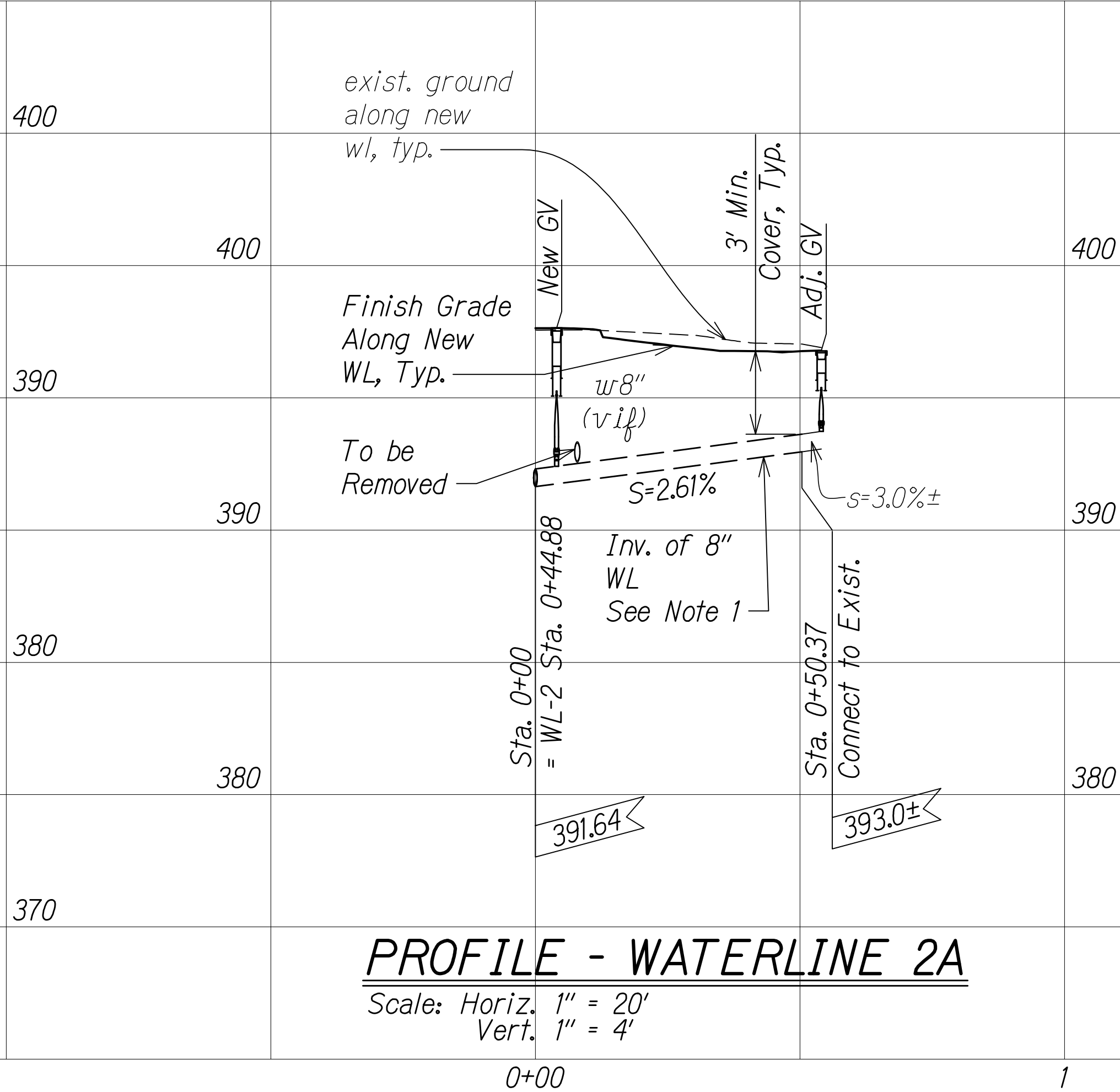
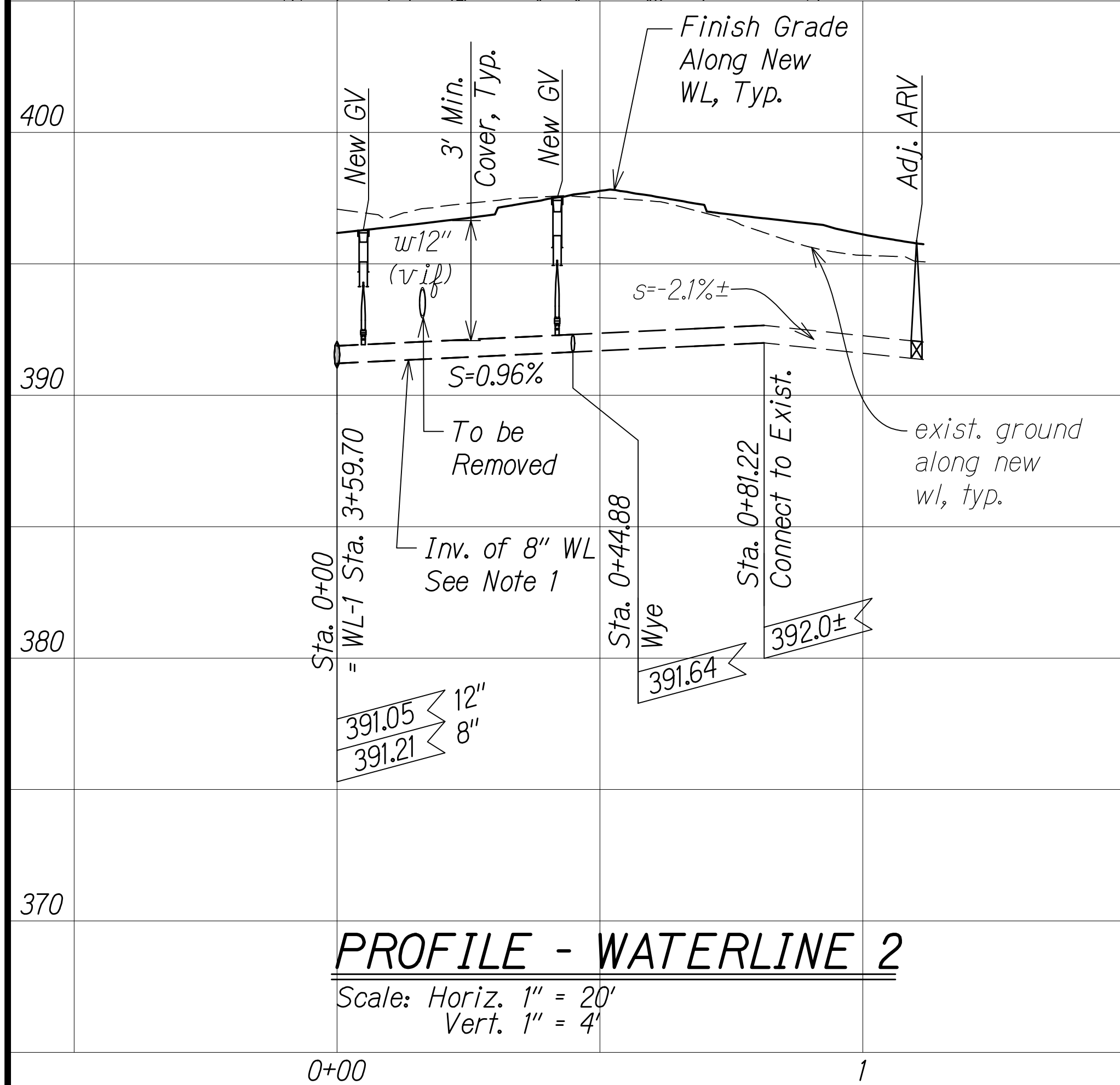
NOTES:

1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
2. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
3. Existing waterline location and size are assumed only. Contractor to confirm size and determine location in field before installation of replacement pipes.
4. Field locate and verify all exist. water service laterals.
5. For new service lateral connection, see DWS Std. Det. L7, L8, L9 and L10.
6. Valve box for 2.5" to 8" GVs, see DWS Std. Det. V14. Valve box for BVs, see DWS Std. Det. V15.
7. At connection to exist,
Install:
Bend w/ Megalug Restraint Glands
1- 8" Solid Body Sleeves w/ Megalug Restraint Glands
Necessary 8" DI Pipe Nipples
1- Conc. Blk
8. All CL stations are based from Keaaupahoa Rd. CL
9. Contractor shall salvage exist. FH for DWS and shall remove exist. water mains, lateral lines, WVs, WMHs and WMs to be replaced with new prior to installation of new street light poles.

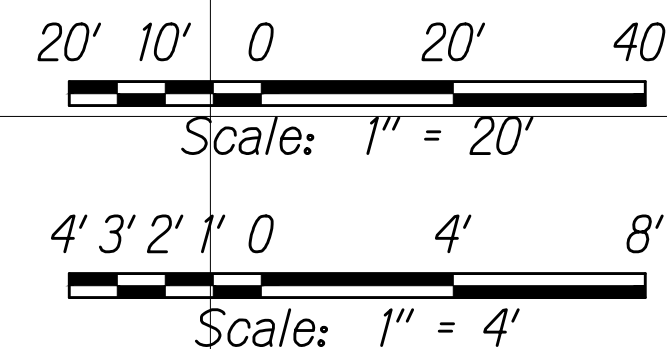


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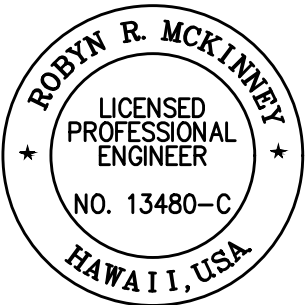


C:_CIVIL_3D_PROJECTS\2012_153.000_KEAAU-PAHOA RD IMPR RTE\130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKU\060 - 062 WATERLINE ENP.DWG 9/1/2020 2:02 PM SRODELAS

FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	61	116

NOTES:

1. New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
2. Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
3. Field locate and verify all exist. water service laterals.
4. For new service lateral connection, see DWS Std. Det. L7, L8, L9 and L10.

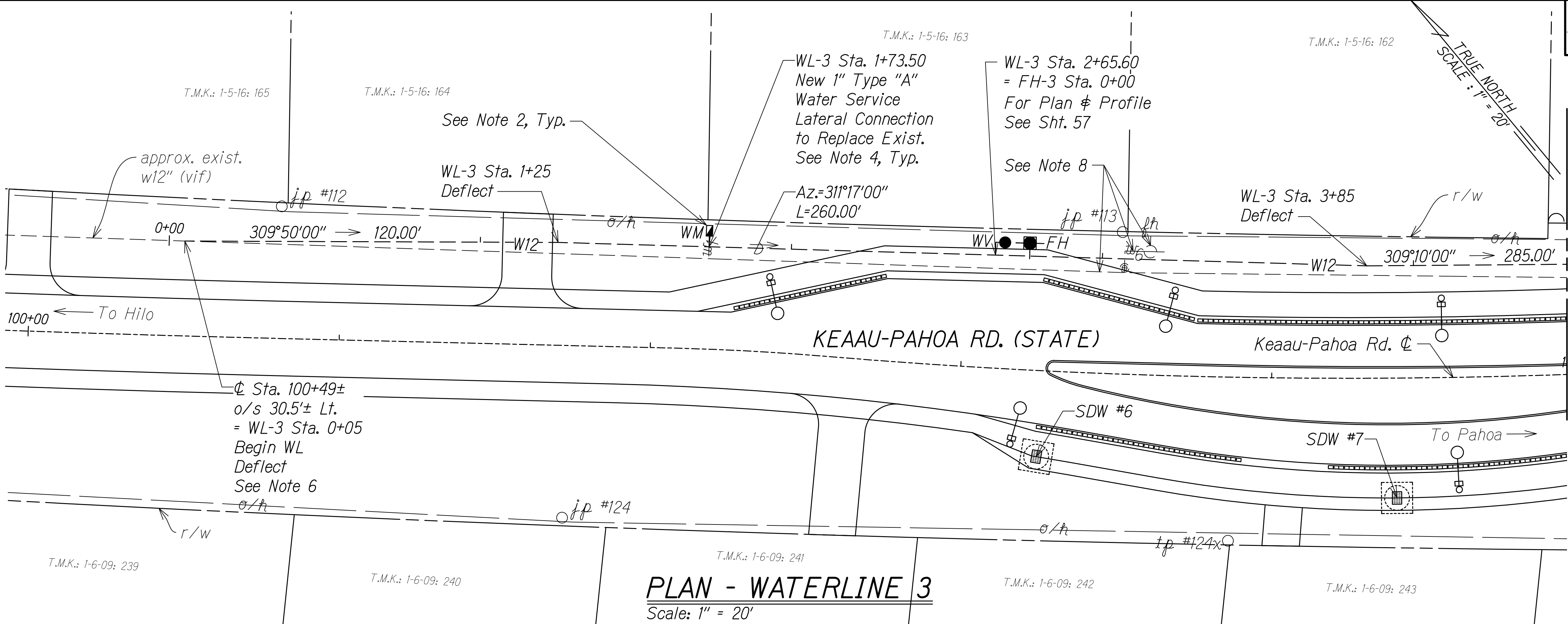
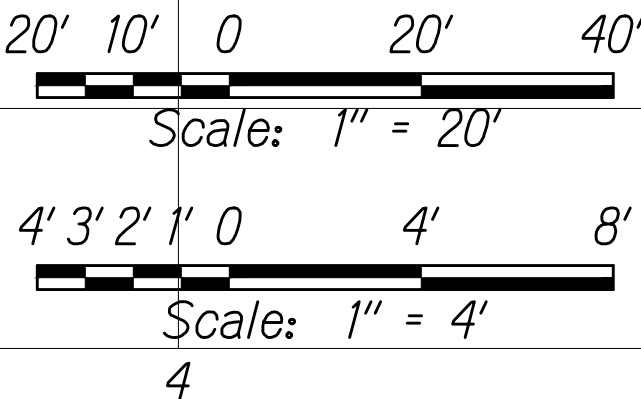


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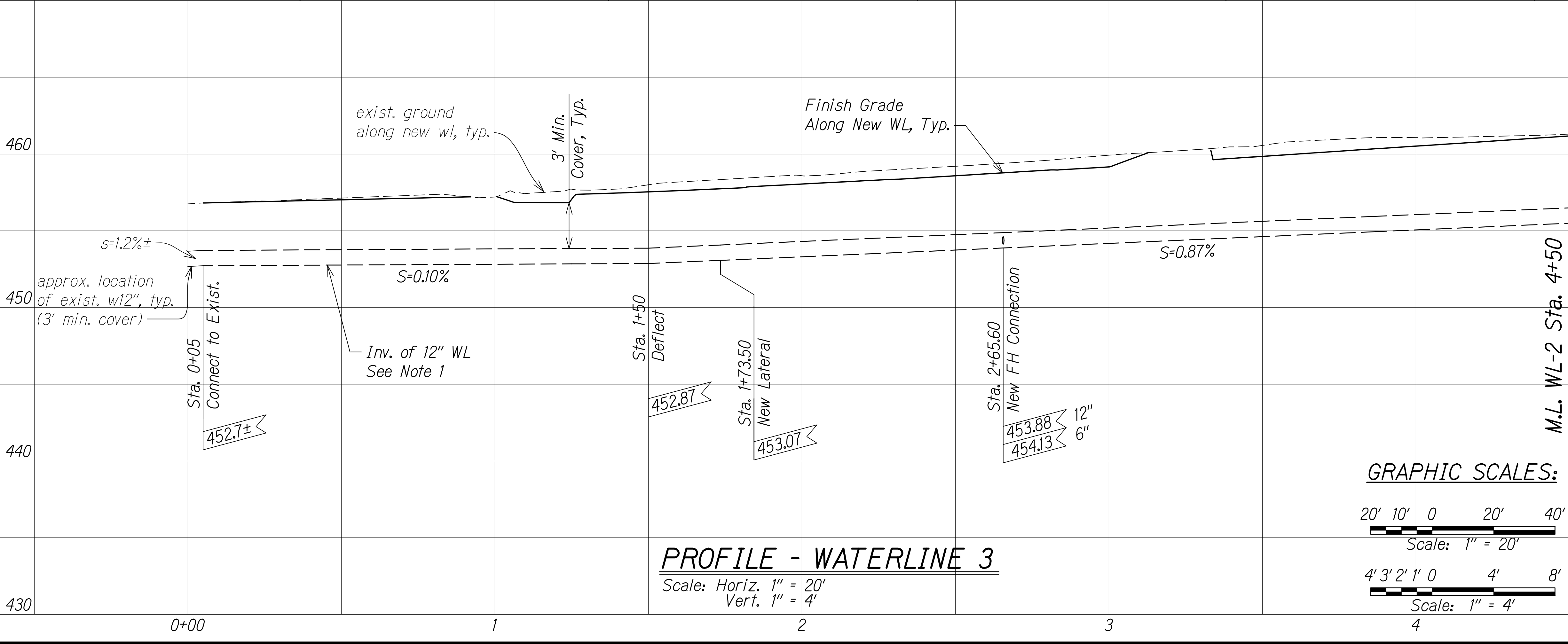
5. Valve box for 2.5" to 8" GVs, see DWS Std. Det. V14. Valve box for BVs, see DWS Std. Det. V15.
6. At connection to exist., Install:
1- 12" Solid Body Sleeves w/ Megalug Restraint Glands
Necessary 12" DI Pipe Nipples
7. All $\mathcal{C}$ stations are based from Keaau-Pahoa Rd. $\mathcal{C}$.
8. Contractor shall salvage exist. FH for DWS and shall remove exist. water mains, lateral lines, WVs, WMHs and WMs to be replaced with new prior to installation of new street light poles.

GRAPHIC SCALES:



PLAN - WATERLINE 3

Scale: 1" = 20'



PROFILE - WATERLINE 3

Scale: Horiz. 1" = 20'
Vert. 1" = 4'

C:_CIVIL_3D_PROJECTS\2012_153,000_KEAAU-PAHOA RD IMPR RTE130\ROUNDABOUT DESIGN\01 CIVIL DRAWINGS\02 ORCH AND MAKUU\060 - 062 WATERLINE ENP.DWG 8/26/2020 7:22 PM SPRODELAS

FED. ROAD DIST. NO.	STATE	FED-AID PROJ. NO.	FISCAL YEAR	SHEET NO.	TOTAL SHEETS
HAWAII	HAW.	STP-0130(27)	2021	62	116

NOTES:

- New pipes shall be Ductile Iron, Class 52. For trench restoration detail, see Sht. 22.
- Adjust all DWS exist. WMHs, WVs and WMs to remain to finish grade.
- Field locate and verify all exist. water service laterals.
- For new service lateral connection, see DWS Std. Det. L7, L8, L9 and L10.
- Valve box for 2.5" to 8" GVs, see DWS Std. Det. V14. Valve box for BVs, see DWS Std. Det. V15.
- At connection to exist. w12" or w8", Install:
Bend w/ Megalug Restraint Glands
1- 12" or 8" Solid Body Sleeves w/ Megalug Restraint Glands
Necessary 12" or 8" DI Pipe Nipples
1- Conc. Blk
- All ϕ stations are based from Keaaupahoa Rd. ϕ .
- Contractor shall salvage exist. FH for DWS and shall remove exist. water mains, lateral lines, WVs, WMHs and WMs to be replaced with new prior to installation of new street light poles.
- Exist. 24" culvert shall be supported prior to waterline installation.
- Provide 21 LF reinforced conc. jacket starting and ending 5' from faces of bends. See DWS Std. Det. B1.

