Subject:	**Preliminary Construction Schedules for Bethany Reservoir Alternative (Final Draft)**
Project feature:	Projectwide
Prepared for:	California Department of Water Resources (DWR) / Delta Conveyance Office (DCO)
Prepared by:	Delta Conveyance Design and Construction Authority (DCA)
Copies to:	File
Date/Version:	December 23, 2021
Reference no.:	EDM_PW_CE_TMO_Prel-Const-Schedules-Bethany_001006_V03_FD_20211223

1. Purpose and Introduction

The Delta Conveyance Project (DCP) Bethany Reservoir Alternative would include intakes along the Sacramento River between its confluences with American River and Sutter Slough. The DCP also includes a main tunnel extending from the intakes to a surge basin and pumping plant at the downstream terminus of the main tunnel in the Bethany Complex. From the pumping plant water would flow in the Bethany Reservoir Aqueduct pipeline into Bethany Reservoir. This pipeline would include two sections of tunneling below the existing CVP Jones Plant discharge penstock pipelines and below the Bethany Reservoir Conservation Easement.

This technical memorandum (TM) provides a narrative for construction schedules produced in support of the Project for the Bethany Reservoir Alternative (Figure 1). Separate schedules were provided for both the Central and Eastern corridors; these were investigated in association with the DCP's Notice of Preparation (DWR 2020) and are included in Preliminary Construction Schedules for Central and Eastern Corridor Options TM(DCA 2021a).

1.1 Organization

This TM is organized as follows:

- Construction Schedules
- Construction Packages Sequencing
- Options Considered
- References
- Document History and Quality Assurance

2. Construction Schedules

The schedules provided Attachment 1 represents the sequenced construction activities and durations for the following alternatives:

1) Option B2A: Bethany Reservoir Alternative, 6,000-cubic-feet-per-second (cfs) vertical plate screen intake

2) Option B2B: Reservoir Alternative, 6,000-cfs cylindrical tee screen intake

These conceptual schedules are intended to provide relative guidance for the overall duration of the construction project starting at year zero and are not associated with specific notice-to-proceed dates.

The schedules were developed using scheduling software and provide a conceptual sequence of construction activities that could be used to complete the facility components. They are based on the 2021 footprint design information available at the time the schedule was developed (DCA 2021b) and an assumed number of construction packages. They only delineate one possible sequence of work and are not meant to dictate contractor means and methods, encapsulate possible phasing activities that could shorten the overall schedule, or accommodate unforeseen elements that drive critical path.

The final construction package configuration, sequence of activities, and duration of the schedule will depend upon future project execution decisions, the actual execution of the work, the contractor's actual means and methods, seasonal constraints, definition and variation of the design, abnormal conditions, and other variable factors. Therefore, final schedules would be expected to vary from the conceptual schedules presented here.

3. Construction Packages Sequencing

The schedules developed reflect the sequencing of various preliminary construction packages, including:

- Early works
- Intakes
- Tunnels and Shafts
- Pumping Plant
- Surge Basin
- Aqueduct Pipeline

This information represents preliminary construction sequencing to be used in development of the EIR impact analysis. During future design phases, additional analyses will be completed to determine the configuration and sequencing of multiple construction contracts.

3.1 Early Works

Early works packages include work required to provide access and utilities to each work site. Separate road access works packages were assumed for the northern and southern parts of the project area. The sequence of the individual access works has been set to match the order of the main feature works. Rail access, power supply, and other utility provisions will also be completed as early works to support the main feature contracts.

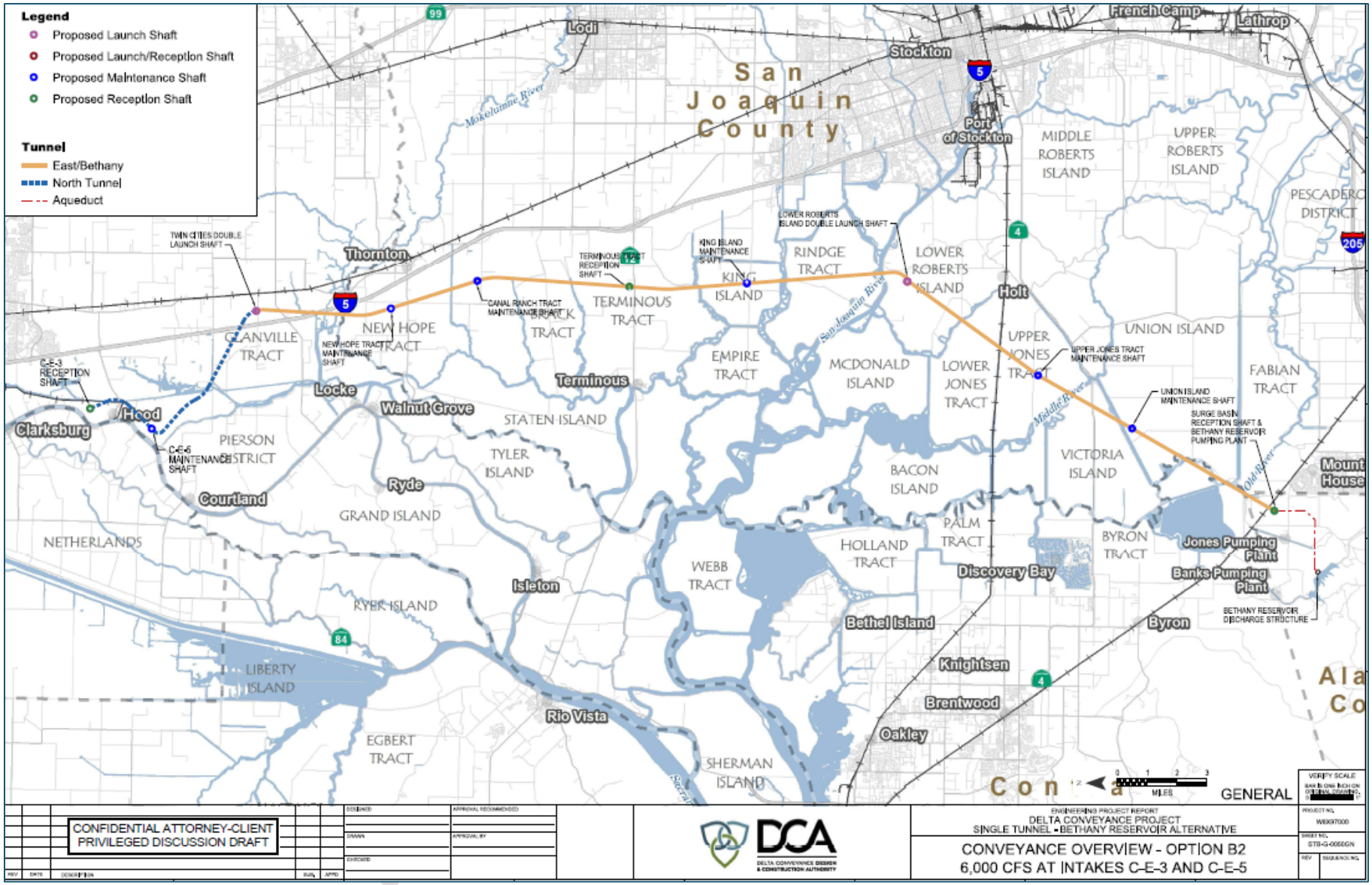


Figure 1. Proposed Conveyance System

3.2 Intakes

Each intake structure was considered as a separate contract with a 1-year stagger to the start of each. The sequence of the intakes is from south to north to reflect the direction of the northern tunnel drive, so the inlet shafts are ready for the advancing tunnel drive. The sequence of construction for intakes includes:

- Stage 1 to prepare temporary levee embankment and temporary diversion of State Route 160
- Stage 2 to construct the cofferdam and intake structure
- Stage 3 to complete the sediment basins and associated earthworks

The stages were established for scheduling purposes and do not match the phases shown on the drawings, which are intended to support overall sequencing of highway relocation and flood control features.

3.3 Tunnels and Shafts

The schedules assume four main tunnel contracts and one Aqueduct tunnel contract, described later in this TM. The Tunnel contracts include shaft construction and the preparation of the shaft working pads, except working pads at the intakes. At sites with tunnel drives in opposite directions, the first tunnel contract would include the completion of a double launch shaft before handing over one cell of the shaft to the second contract.

The tunnel contracts would include reception and maintenance shafts, with the construction sequenced to follow on from the launch shaft in the direction of the tunnel drive. The reception shaft at Terminus Tract receives two tunnel drives and is included in the first planned to arrive contract. The reception shaft at the Bethany Complex would be constructed early within the Reach 4 tunnel contract so the site could be released to the pumping plant and surge basin contracts.

Tunnel excavation rates were established from various tunnels of similar size and similar ground conditions using the same type of equipment. The rates were determined using historical data for segmental ring erection sequences from published data: Colzani (2001) and Davies (2009). Using a similar buildup of tunnel liner building and excavation activities , the overall average for tunnel excavation for these 36-foot-inside-diameter tunnels was estimated at approximately 40 linear feet per day, using a segmental precast concrete lining on a 20-hour work day and taking into account tunnel boring machine startup and stoppages.

3.4 Pumping Plant

The Bethany Reservoir Pumping Plant contract includes the construction of a deep box structure and the wet well conduit, as well as associated mechanical and electrical buildings, and the installation of the pumping equipment and associated pipework and surge tank facilities. Pipe work in and around the box structure are included in the contract to the southern extent of the site, where they join to the Bethany Reservoir Aqueduct contract.

The pumping plant box structure would be sequenced as a top-down construction, where the installation of the perimeter diaphragm walls and columns would be followed by the construction of the ground level slab. Subsequent excavation would take place below this top slab, installing intermediate slabs sequentially to support the walls as excavation progresses. Internal walls and bulkheads would be installed at each slab level once there was sufficient clearance to the excavation and slab construction below. This

method would also enable surrounding building structures to be progressed concurrently with the main box excavation.

The pumping plant contract would also include the construction of a wet well conduit from the northern side of the pumping plan to the main tunnel reception shaft in the surge basin. This inlet conduit would be constructed at the same time as the main wet well, using the same methods.

3.5 Surge Basin

The surge basin construction would commence as a separate contract after the main tunnel reception/surge shaft and the near surface parts of the wet well conduit were completed. The perimeter diaphragm walls would be installed, followed sequentially by the excavation with tie back anchors, the holding down piles, the base slab, and the access ramp. These activities could take place concurrently with the wet well conduit and pumping plant once the second level slab was completed and operations could be isolated.

The top sections of the reception/surge shaft and the wet well inlet conduit diaphragm walls would be removed by the surge basin contractor before they completed the overlying section of the base slab. Final works to install the dewatering bridge structure and weir wall around the surge shaft would be delayed until after the completion of the main tunnel drive and the removal of the tunnel boring machine from the shaft.

3.6 Aqueduct

Initial site clearance work for the Bethany Reservoir Aqueduct alignment would include the preparation of site access to the tunnel portal areas, so the tunnel construction could be completed before the excavation for the cut-and-cover sections of the pipeline. The Aqueduct tunnel includes two sets of four tunnels, one set below the CVP Jones Pumping Plant discharge penstock pipelines and one set below the Bethany Reservoir Conservation Easement.

The riser shafts at the downstream end of the Conservation Easement set of tunnels at the Bethany Reservoir Discharge Structure would be constructed concurrently with the tunnels so they were completed before the Conservation Easement tunnels arrived. The completion of the discharge structure over the shafts would be delayed until after the pipeline was installed within the shaft excavations.

The steel pipeline within the tunnel sections would be installed before the excavation of the cut-and-cover sections, enabling the use of the portal and tunnel excavation material to backfill the portal areas. The Aqueduct excavation with the installation of pipes could continue with concurrent backfilling as work progressed.

4. Options Considered

The Bethany Reservoir Alternative schedules also reflect the construction of two separate intake fish screening options: (1) vertical flat plate screens and (2) cylindrical tee screens. Both types of intake follow the same three-stage construction sequences. The key difference is between the construction of box conduits for the vertical screen option and jacking of pipe for the cylindrical tee screen option. The box conduit is constructed in two phases, as the temporary road is diverted during Stages 2 and 3 of the sequence. The pipes for the tee screens are installed during Stage 3, after the permanent levee is completed and the temporary highway and levee are moved back adjacent to the intake structure.

Schedules developed for the Bethany Reservoir Alternative only considered the 6,000cfs flow rate.

5. References

California Department of Water Resources (DWR). 2020. Notice of Preparation of Environmental Impact Report for the Delta Conveyance Project. January 15. (https://water.ca.gov/-/media/DWR-Website/Web-Pages/Programs/Delta-Conveyance/Delta_Conveyance_Project_NOP_20200115_508.pdf?la=en&hash=74B80DAAE5B9C4BC2EB0619B6A252011F72D1087)

Delta Conveyance Design and Construction Authority (DCA). 2021a. Preliminary Construction Schedules for Central and Eastern Corridor Options, Technical Memorandum. Final Draft.

Delta Conveyance Design and Construction Authority (DCA). 2021b. Draft Engineering Project Report Bethany Reservoir Alternative, Volume 2 - Engineering Concept Drawings. Final Draft.

G Colzani, J. Strid, S. Cole, and D. Olsen. 2001. Tunneling at Hollywood Reservoir. Proceedings of the Rapid Excavation and Tunneling Conference 2001.

J. Davies, K. Chin, J. Ohnigian, and J. Stokes. 2009 Construction of the North Dorchester Bay CSO Storage Tunnel in Boston. Proceedings of the Rapid Excavation and Tunneling Conference 2009.

6. Document History and Quality Assurance

Reviewers listed have completed an internal quality review check and approval process for deliverable documents that is consistent with procedures and directives identified by the Engineering Design Manager (EDM) and the DCA.

Approval Names and Roles			
Prepared by	**Internal Quality Control review by**	**Consistency review by**	**Approved for submission by**
Martin Ellis / EDM BIM Integration Lead	Greg Colzani / EDM QC reviewer	Gwen Buchholz / DCA Environmental Consultant Phil Ryan / EDM Design Manager	Terry Krause / EDM Project Manager

This interim document is considered preliminary and was prepared under the responsible charge of Martin Ellis, California Professional Engineering License C83803.

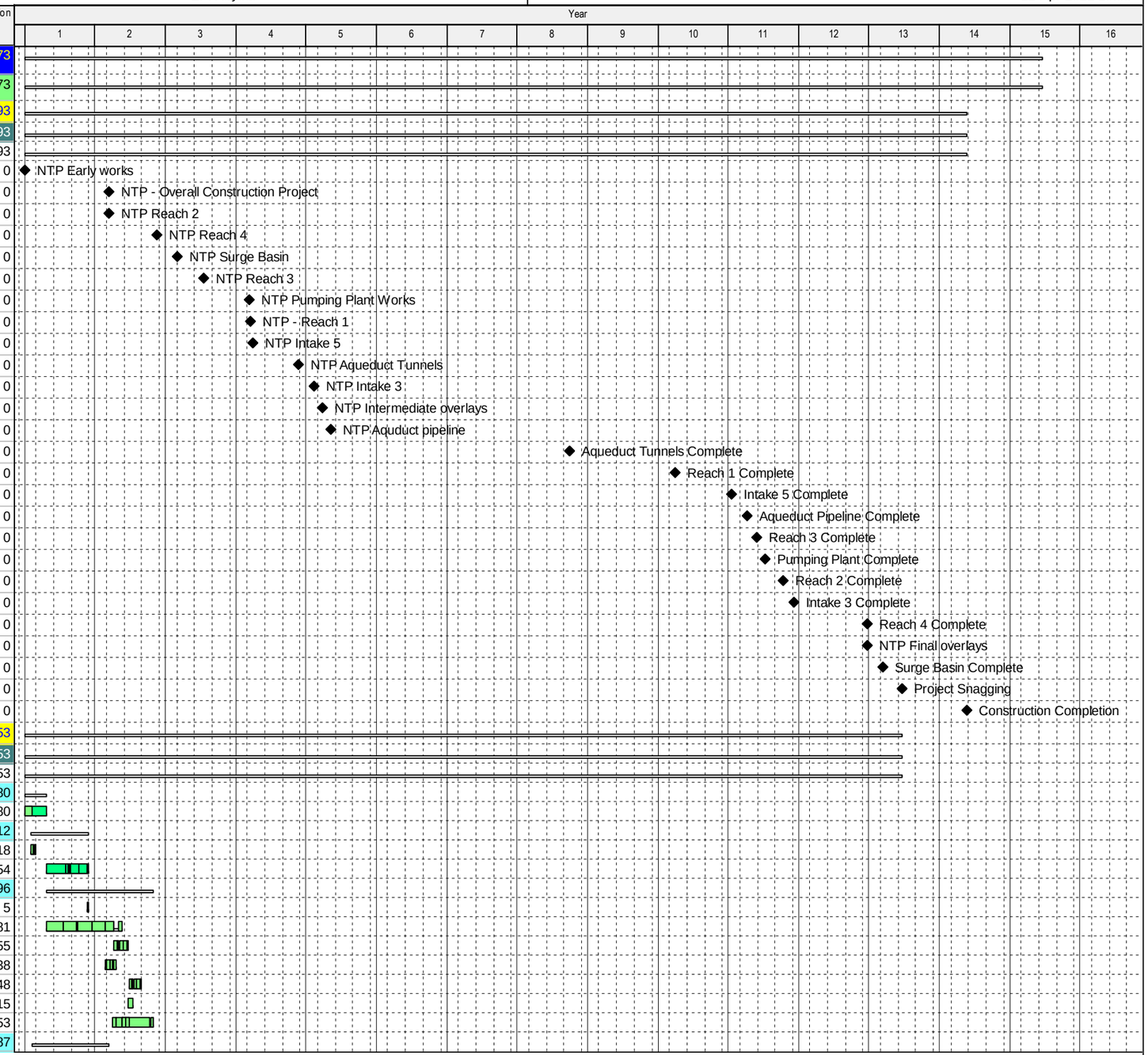
Note to Reader

This is an early foundational technical document. Contents therefore reflect the timeframe associated with submission of the initial and final drafts. Only minor editorial and document date revisions have been made to the current Conformed Final Draft for Administrative Draft Engineering Project Report version.

Attachment 1
Construction Schedules

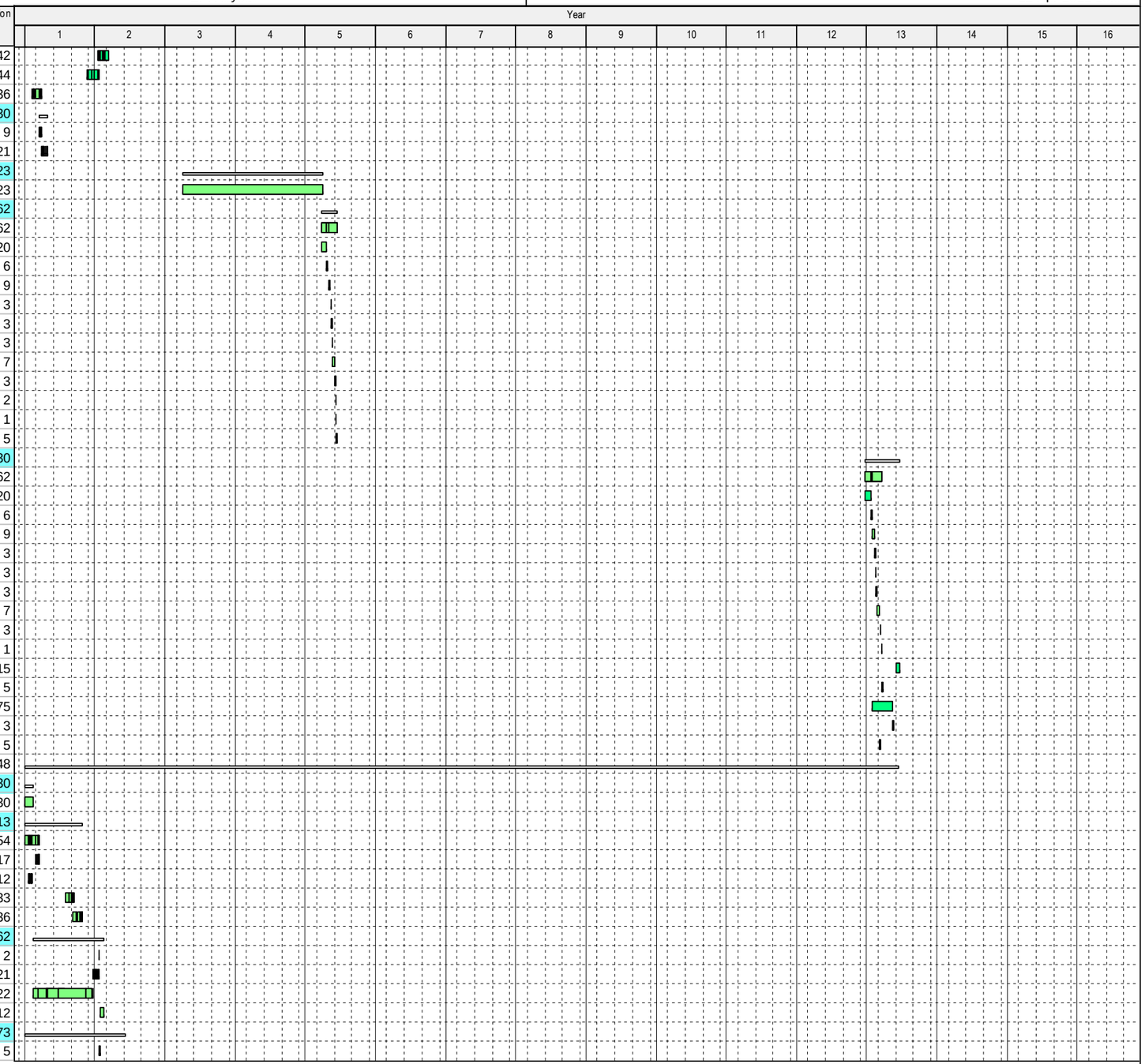
Attachment 1. Construction Schedules

Activity ID	Activity Name	Original Duration
DELTA CONVEYANCE PROJECT EDM - Bethany 2A 2020-10 Footprin		3773
CO CONSTRUCTION		3773
CO.PG PROGRAMMATIC MANAGEMENT		3493
CONSTRUCTION MILESTONES		3493
Construction Milestones		3493
G1010	NTP Early works	0
A1000	NTP - Overall Construction Project	0
E1000	NTP Reach 2	0
C1000	NTP Reach 4	0
J1000	NTP Surge Basin	0
D1000	NTP Reach 3	0
K1000	NTP Pumping Plant Works	0
F1010	NTP - Reach 1	0
G1000	NTP Intake 5	0
B1000	NTP Aqueduct Tunnels	0
G9010	NTP Intake 3	0
I1000	NTP Intermediate overlays	0
G1020	NTP Aquduct pipeline	0
B9000	Aqueduct Tunnels Complete	0
F9002	Reach 1 Complete	0
G9020	Intake 5 Complete	0
G1030	Aqueduct Pipeline Complete	0
D9000	Reach 3 Complete	0
K9000	Pumping Plant Complete	0
E9000	Reach 2 Complete	0
G9000	Intake 3 Complete	0
C9000	Reach 4 Complete	0
I1010	NTP Final overlays	0
J9000	Surge Basin Complete	0
Z9000	Project Snagging	0
Z9010	Construction Completion	0
CO.EW CONSTRUCTION EARLY WORKS		3253
ROAD WORKS		3253
NORTH ROAD WORKS		3253
MOB/FACILITIES NORTH		80
771003 - Mobilization North		80
PARK AND RIDES N		212
771314000-Employee Park & Ride - Rio Vista - Both		18
771315000-Employee Park & Ride - Hood Franklin - Both		154
ACCESS TO INTAKES		396
771120000 - Hood Franklin Road Widening		5
771130000-Intakes Access Road - Both		281
771150000 - C-E-05Intake Access Road		55
771460000 - Lambert Road Widening		38
771840000 - Intake #3		48
771860000-Intakes - SR160 - Both		15
7719900-Intake #2 Access Road - Option		153
ACCESS TO TWIN CITIES		287



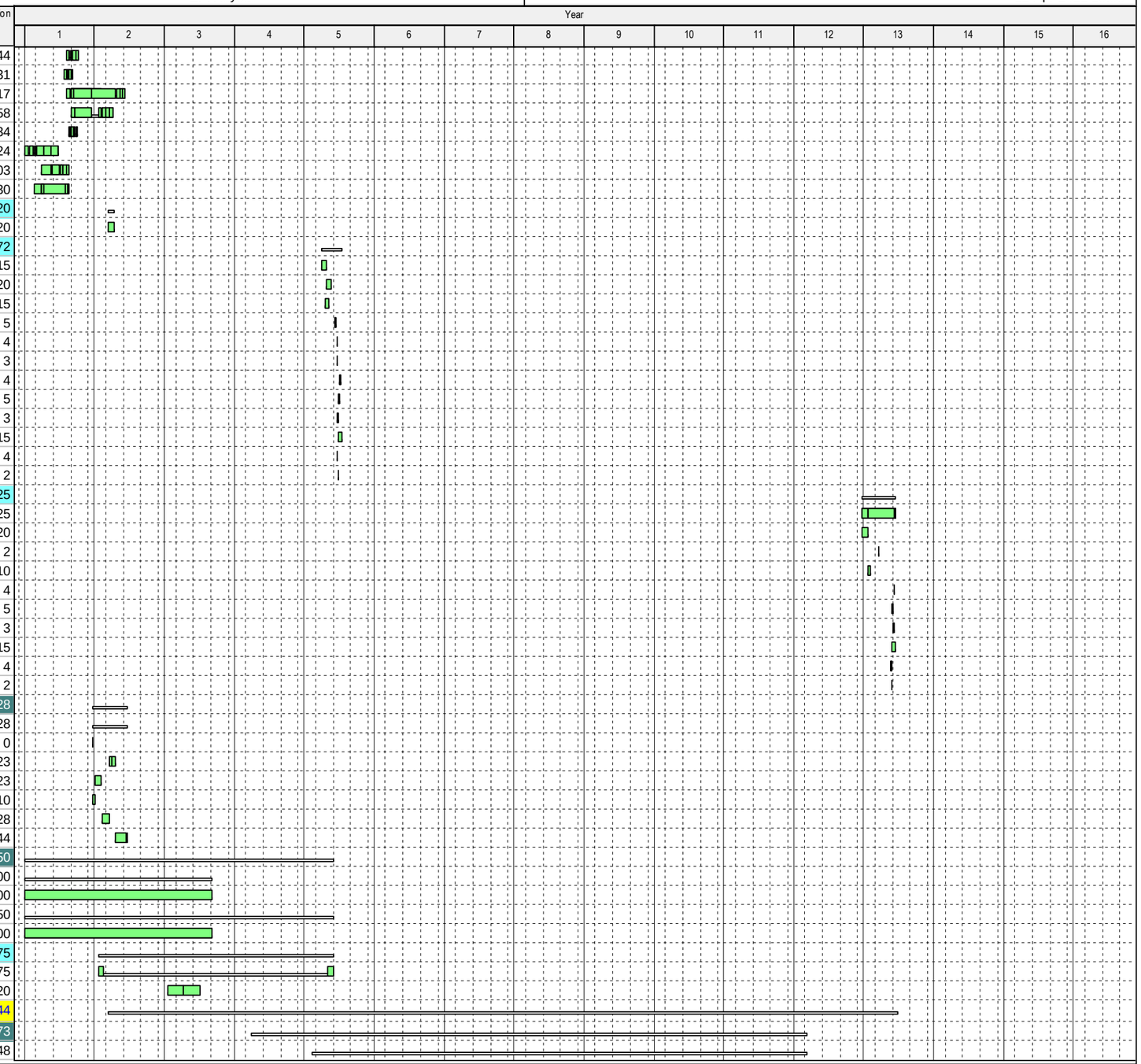
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	771420000 - Dierrsen Road Paving	42
	771430000 - Franklin Blvd Improvements at Dierrsen	44
	771470000 - Twin Cities Road Widening (East)	36
	ACCESS TO N MID DELTA	30
	771710000-New Hope Tract Road - East	9
	771730000-Highway 12 /Terminous Tract Widening - East	21
	ROAD MAINTENANCE NORTH	523
	771710000-New Hope Tract Road - East	523
	INTERMEDIATE OVERLAYS	62
	771006200-Contractor Site Mgmt & Facilities - Intrm Ovrly B	62
	771006300-Mobilization - Intrm Overlay - Both	20
	771120000-Hood Franklin Road - Both	6
	771130000-Intakes Access Road - Both	9
	771150000-C-E-05Intake Access Road - Both	3
	771420000-Dierrsen Road Paving - Both	3
	771430000-Franklin Blvd Improvements at Dierrsen - Both	3
	771460000-Lambert Road Widening - Both	7
	771470000-Twin Cities Road Widening (East) - Both	3
	7717700-Canal Ranch Tract - East	2
	771840000-Intake #3 Access Road - Both	1
	7719900-Intake #2 Access Road - Option	5
	FINAL OVERLAYS	130
	771006500-Contractor Site Mgmt & Facilities - Final Ovrly B	62
	771006600-Mobilization - Final Overlay - Both	20
	771120000-Hood Franklin Road - Both	6
	771130000-Intakes Access Road - Both	9
	771150000-C-E-05Intake Access Road - Both	3
	771420000-Dierrsen Road Paving - Both	3
	771430000-Franklin Blvd Improvements at Dierrsen - Both	3
	771460000-Lambert Road Widening - Both	7
	771470000-Twin Cities Road Widening (East) - Both	3
	771840000-Intake #3 Access Road - Both	1
	771860000-Intakes - SR160 - Both	15
	7718700-Kings Island Access Road - East	5
	7718800-Union Island Access Road	75
	7719000-Byron Hwy Frontage Rd	3
	7719900-Intake #2 Access Road - Option	5
	SOUTH ROAD WORKS	3248
	MOB/FACILITIES SOUTH	30
	771003-Mobilization - South	30
	PARK AND RIDES S	213
	771310000 - Employee Park & Rides - Byron	54
	771311000-Employee Park & Ride - Bethany	17
	771313000-Employee Park & Ride - I-05& Charter Way	12
	7713170-Employee Park & Ride - W Grant Line Rd	33
	7713180-Employee Park & Ride - Pavillion Pkwy	36
	ACCESS TO S MID DELTA	262
	7717700-Canal Ranch Tract - East	2
	7718200 - Upper Jones Tract Road - East	21
	771830000-Lower Roberts Island Road - East	222
	7718800-Union Island Access Road	12
	ACCESS TO SOUTHERN COMPLEX	373
	7718700-Kings Island Access Road - East	5



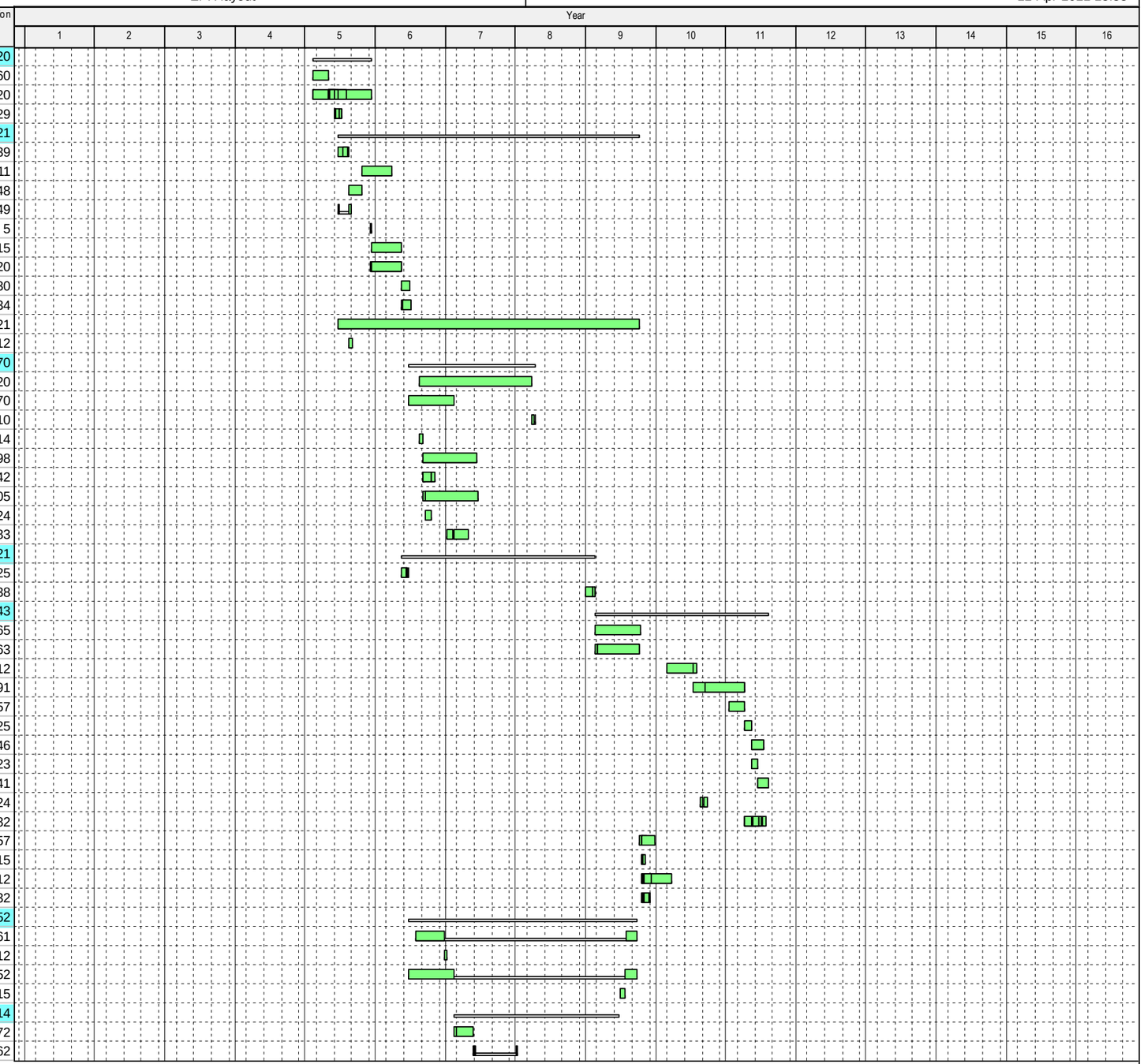
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	7719000-Byron Hwy Frontage Rd	44
	7719100-Byron Hwy	31
	7719200-Byron Hwy - Lindemann Rd Intersection	217
	7719300-Mountain House Shaft Access Road	158
	7719400-Kelso Road Widening	34
	7719500-Mountain House Road Widening	124
	7719600-Bethany Road	103
	7719700-Mountain House Rd By-pass	130
	ROAD MAINTENANCE SOUTH	20
	771005320-Mobilization - Gravel Road Maintenance - East	20
	INTERMEDIATE OVERLAYS	72
	771006320-Mobilization - Intrm Overlay - East	15
	771830000-Lower Roberts Island Road - East	20
	771860000-Intakes - SR160 - Both	15
	7718700-Kings Island Access Road - East	5
	7718800-Union Island Access Road	4
	7719000-Byron Hwy Frontage Rd	3
	7719200-Byron Hwy - Lindemann Rd Intersection	4
	7719300-Mountain House Shaft Access Road	5
	7719400-Kelso Road Widening	3
	7719500-Mountain House Road Widening	15
	7719600-Bethany Road	4
	7719700-Mountain House Rd By-pass	2
	FINAL OVERLAYS	125
	771006520-Contractor Site Mgmt & Facilities - Final Ovrly E	125
	771006620-Mobilization - Final Overlay - East	20
	7717700-Canal Ranch Tract - East	2
	771830000-Lower Roberts Island Road - East	10
	7719200-Byron Hwy - Lindemann Rd Intersection	4
	7719300-Mountain House Shaft Access Road	5
	7719400-Kelso Road Widening	3
	7719500-Mountain House Road Widening	15
	7719600-Bethany Road	4
	7719700-Mountain House Rd By-pass	2
	RAIL WORKS	128
	LOWER ROBERTS ISLAND RAIL WORKS	128
	7720030-Mobilization - East	0
	7720200-Ballast/Sub-ballast - East	23
	7720200-Embankment - East	23
	7720200-Excavate Unsuitable - East	10
	7720200-Subdrain System - East	28
	7720200-Track - East	44
	POWER AND UTILITY EARLY WORKS	1150
	POWER/ELECTRIC WORKS	700
	601008 - Electrical	700
	UTILITY LOGISTICS	1150
	Utility Logistics	700
	CONCRETE SUPPLY	875
	6201 - Erect Batch Plants Lambert Rd	875
	6252 - Erect Batch Plants Bethany Complex	120
	CO.MAJOR CONSTRUCTION	2944
	IN INTAKES	2073
	IN INTAKE 3	1848



TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	Mobilization & Operations	220
113003000	Intake 3 Contractor Mobilization	60
113007010	Construct Temp Buildings & Utilities	220
113007100	Intake 3 Build Site Construction Roads	29
	Phase 1 Sitework	1121
113305100	Int 3 Ph1Site Clear & Grub	39
113305210	Int 3 Ph 1 DMM Soil Improvement	111
113305220	Int 3 Ph 1 DMM Cut-off Trench	48
113305230	Int 3 Ph 1 DMM Subcontract Mobe & Demobe	49
113305300	Int 3 Ph 1 Excavate Key Trenches	5
113305410	Int 3 Ph 1 Highway Temporary Fill from Reqd Exc	115
113305430	Int 3 Ph1 Moisture Condition Suitable Soil	120
113305510	Int 3 Ph1 Place Dike Fill from Reqd Excavation	30
113305520	Int 3 Ph 1 Moisture Condition Suitable Soil	34
113305600	Int 3 Ph1 Dewater Excavation W Deep Wells	1121
113305800	Int 3 Ph 1 Temporary Plating	12
	Phase 2 Sitework	470
113306210	Int 3 Ph 2 DMM Soil Improvement	420
113306220	Int 3 Ph 2 DMM Cut-off Trench	170
113306230	Int 3 Ph 2 DMM Subcontract Mobe & Demobe	10
113306300	Int 3 Ph 2 Excavate Key Trenches	14
113306510	Int 3 Ph 2 Fills from Required Excavation	198
113306520	Int 3 Ph 2 Fills From Borrow	42
113306530	Int 3 Ph 2 Moisture Condition Suitable Soil	205
113306700	Int 3 Ph 2 Temporary Plating	24
113322300	H Piles in DMM Wall	83
	Roads	721
113305900	Intake 3 Pave Temporary Highway 160	25
113306800	Int 3 Ph 2 Pave New Highway 160 & Dike Roads	38
	Phase 3 Sitework	643
113309120	Int 3 Ph 3 Embankment Fill from Site Excavation	165
113309130	Int 3 Ph 3 Moisture Condition Soil	163
113309140	Int 3 Ph3 Excavate Unsuitable to Spoil	112
113309150	Int 3 Ph3 Final Grade and Invert Rock	191
113309160	Int 3 Ph3 Final Grade and Road Plating	57
113309200	Int 3 Ph 3 Dredge Pipe From Basin To Lagoons	25
113309320	Intake 3 Ph 3 Sed Drying Lagoons Shotcrete Lining	46
113309330	Intake 3 Ph 3 Sed Drying Lagoons Underdrains	23
113309340	Intake 3 Ph 3 Sed Drying Lagoons Roller Compact	41
113309400	Intake 3 Hypalon Curtain	24
113309500	Intake 3 Final Utilities, Paving, Fence, S	82
113309600	Intake 3 Office & Vehicle Storage	57
113309700	Intake 3 Fueling Station	15
113309800	Intake 3 Substation & Elect Distribution	112
113309900	Intake 3 Drop Gate/Stoplog Storage Enclosure	32
	Cofferdams	852
113307100	Intake 3 HZ975D-14/AZ18 Front Combi Wall Coffer	561
113307200	Intake3 Fender System	12
113307300	Intake 3 PZC26 Back Wall Cofferdam	852
113307400	Dredging in front of Cofferdam	15
	Intake Structure	614
113313000	Intake 3 Excavate Inside Intake Coffertam	72
113315100	Mobilize Drill Spread	162



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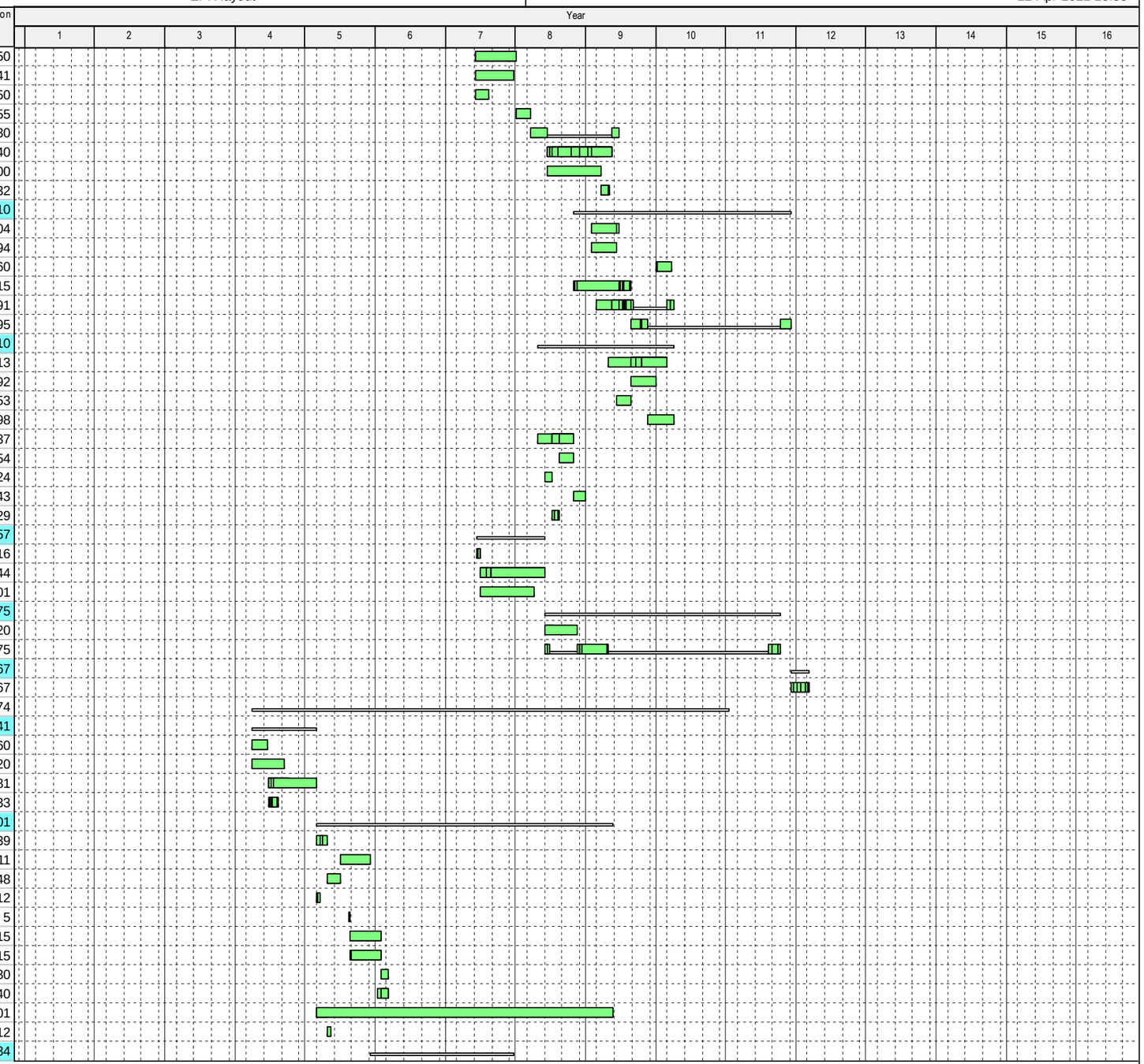
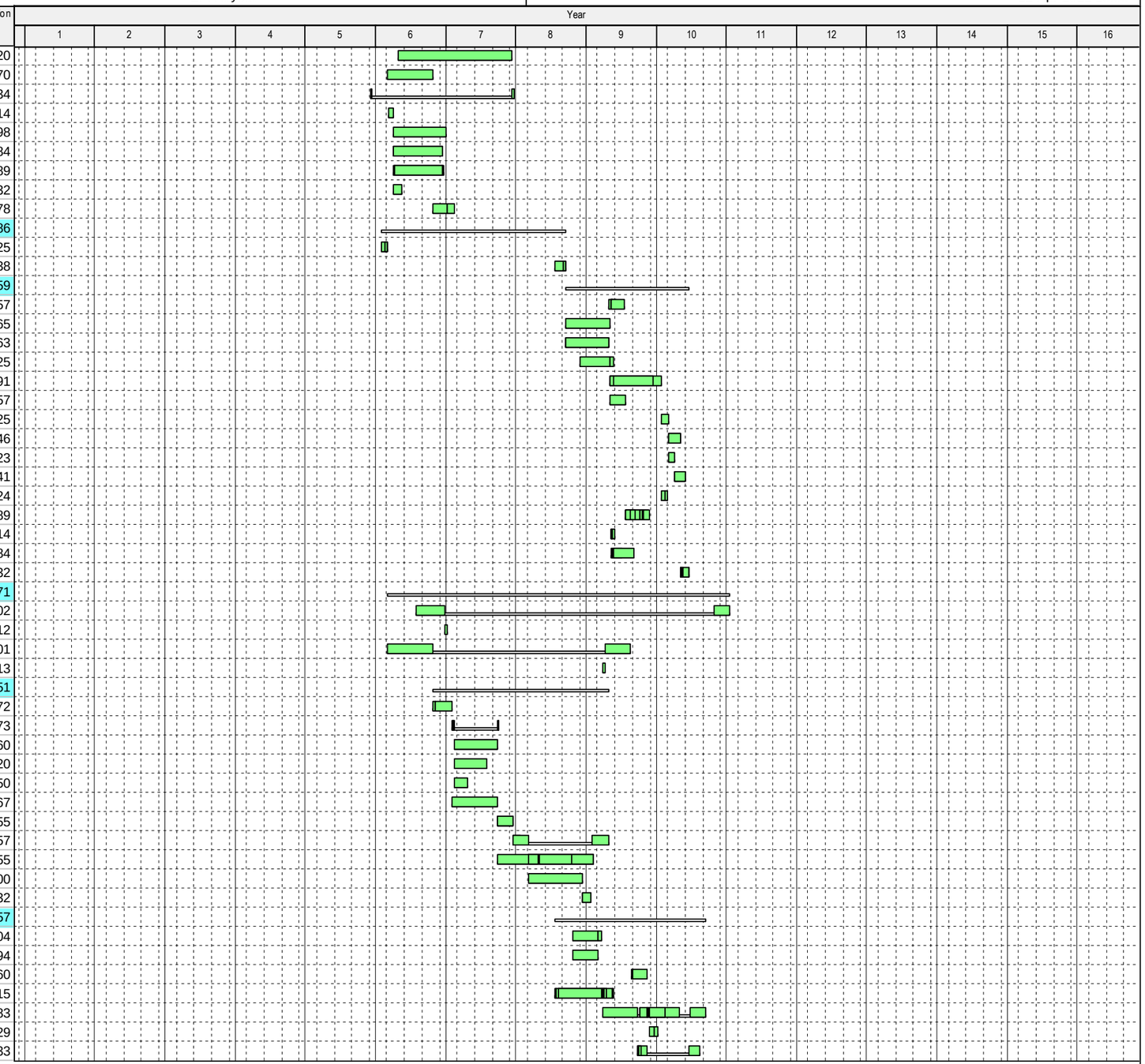
Activity ID	Activity Name	Original Duration
113315210	Drill & Case Pier Shafts	150
113315220	Reinforcing Steel	141
113315230	Place Fill Concrete	50
113317000	Intake 3 Tremie Concrete Under Intake Structure	55
113319000	Intake 3 Dewater Intake C'dam & Place Xbra	330
113321100	Intake 3 Place Concrete	240
113321200	Furnish And Place Rebar	200
113321300	Intake 3 Concrete Fill (flowable concrete)	32
Intake MEP		810
113323000	Intake 3 8'x8' Roller Gates, Guides & Opera	104
113324000	Intake 3 8'x8' Stoplog Gates, Guides	94
113324500	Intake 3 Box Culvert Stoplogs and Guides	60
113325000	Intake 3 Fish Screens, Panels, & Cleaning	215
113327000	Intake 3 MEP	291
113329000	Intake 3 Finish Out	595
Box Culverts		510
113322100	Place Box Concrete 1st 170 ft	213
113322200	Furnish And Place Box Rebar 1st 170 ft	92
113322300	Excavate for Box 1st 170 ft	53
113322400	Backfill for Box 1st 170 ft	98
113322500	Place Box Concrete Gate Shaft & Outlet	137
113322600	Place Box Rebar Gate Shaft & Outlet	54
113322700	Excavate for Box Gate Shaft & Outlet	24
113322800	Backfill over Box Gate Shaft & Outlet	43
113322900	24" Foundation Piles under Gate Structures	29
Sedimentation Basins		257
113355000	Intake 3 Sediment Basin Drive Piles	16
113357100	Place Concrete	244
113357200	Furnish And Place Rebar	201
Sedimentation Basins MEP		875
113359000	Intake 3 Sediment Basin Radian Gates & Stoplogs	120
113361000	Intake 3 Sediment Basin MEP & Finish Work	875
Site Restoration		67
Intake No. 3 - Site Restoration		67
IN INTAKE 5		1774
Mobilization & Operations		241
115003000	Intake 5 Contractor Mobilization	60
115005060	Intake 5 Personnel Mobe Expense	120
115007010	Construct Temporary Buildings & Utilities	181
115007100	Intake 5 Build Site Construction Roads	33
Phase 1 Sitework		1101
115205100	Int 5 Ph1 Clear and Grub	39
115205210	Int 5 Ph 1 DMM Soil Improvement	111
115205220	Int 5 Ph 1 DMM Cut-off Trench	48
115205230	Int 5 Ph 1 DMM Subcontract Mobe & Demobe	12
115205300	Int 5 Ph 1 Excavate Key Trenches	5
115205410	Int 5 Ph 1 Highway Temporary Fill from Reqd Exc	115
115205430	Int 5 Ph1 Moisture Condition Suitable Soil	115
115205510	Int 5 Ph1 Place Dike Fill from Reqd Excavation	30
115205520	Int 5 Ph 1 Moisture Condition Suitable Soil	40
115205600	Int 5 Ph 1 Dewater Excavation with Deep Wells	1101
115205800	Int 5 Ph 1 Temporary Plating	12
Phase 2 Sitework		534



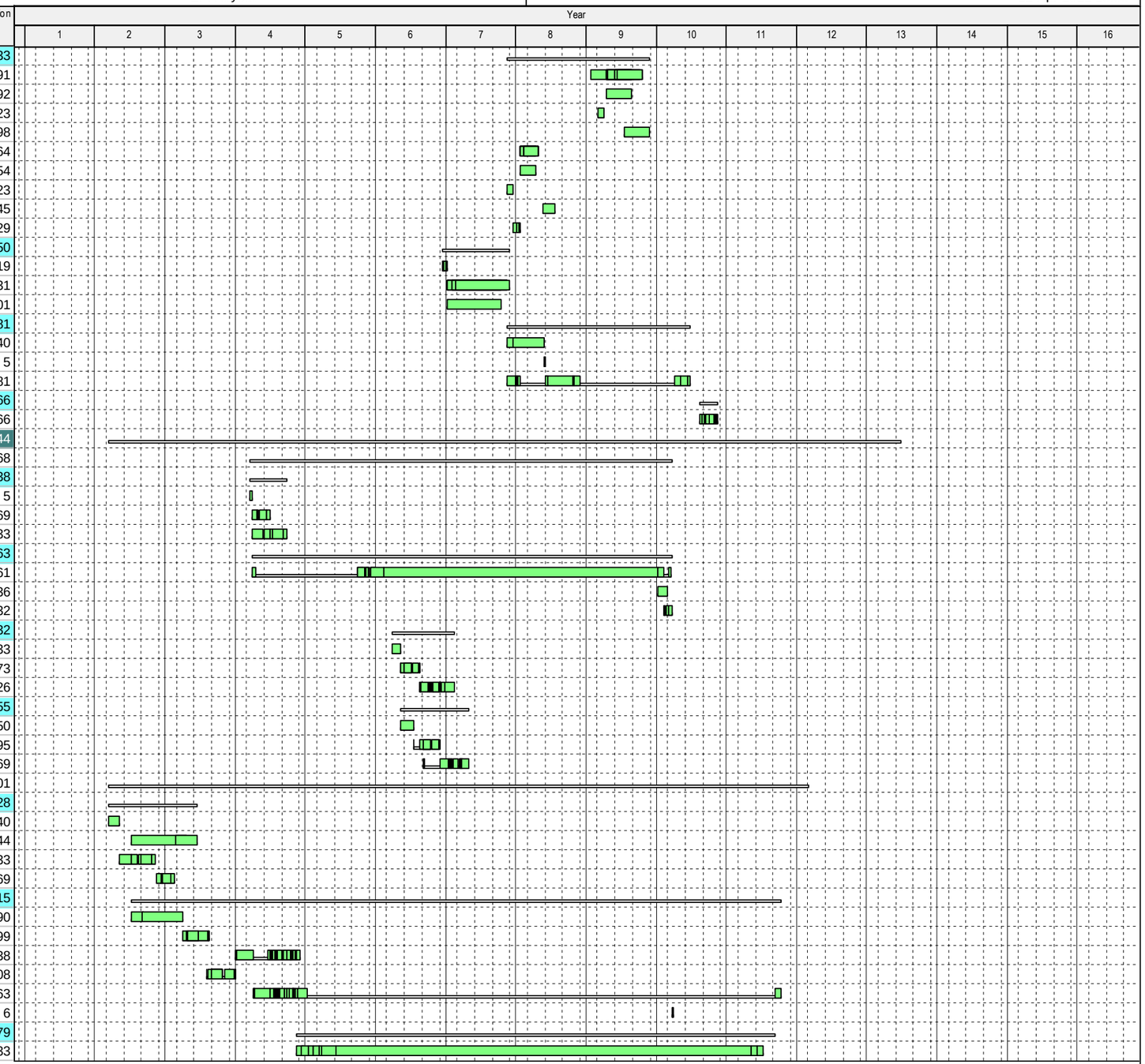
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
115206210	Int 5 Ph 2 DMM Soil Improvement	420
115206220	Int 5 Ph 2 DMM Cut-off Trench	170
115206230	Int 5 Ph 2 DMM Subcontract Mobe & Demobe	534
115206300	Int 5 Ph 2 Excavate Key Trenches	14
115206510	Int 5 Ph 2 Fills from Required Excavation	198
115206530	Int 5 Ph 2 Moisture Condition Suitable Soil	184
115206540	Int 5 Ph 2 Place Dike Core Fill from Borrow	189
115206700	Int 5 Ph 2 Place Temporary Gravel Plating	32
115222300	H Piles in DMM Wall	78
Roads		**686**
115205900	Int 5 Ph 2 Pave Temporary Highway 160	25
115206800	Int 5 Ph 2 Pave New Highway 160 & Dike Roads	38
Phase 3 Sitework		**459**
113309600	Intake 3 Office & Vehicle Storage	57
115209120	Int 5 Ph 3 Embankment Fill from Site Excavation	165
115209130	Int 5 Ph 3 Moisture Condition Soil	163
115209140	Int 5 Ph3 Excavate Unsuitable to Spoil	125
115209150	Int 5 Ph3 Final Grade and Invert Rock	191
115209160	Int 5 Ph3 Place Area Pllating	57
115209200	Int 5 Ph 3 Dredge Pipe From Basin To Lagoons	25
115209310	Int 5 Ph 3 Sed Drying Lagoons Shotcrete Lining	46
115209320	Int 5 Ph 3 Sed Drying Lagoons Underdrains	23
115209330	Int 5 Ph 3 Sed Drying Lagoons Roller Compact	41
115209400	Int 5 Ph 3 Hypalon Curtain	24
115209500	Int 5 Ph3 Final Utilities, Paving, Fence, S	89
115209700	Fueling Station	14
115209800	Intake 5 Substation & Electrical Distribution	84
115209900	Intake 5 Drop Gate/Stoplog Storage Enclosure	32
Cofferdams		**1271**
115207100	Intake 5 HZ975D-14/AZ18 Front Combi Wall Coffer	802
115207200	Intake5 Fender System	12
115207300	Intake 5 PZC26 Back Wall Cofferdam	901
115207400	Dredge in front of Cofferdam	13
Intake Structural		**651**
115213000	Intake 5 Excavate Inside Intake Coffertam	72
115215100	Mobilize & Demobilize Drill Spread	173
115215210	Drill & Case As Reqd Pier Shafts	160
115215220	Reinforcing Steel	120
115215230	Concrete	50
115215240	Pier Shaft Contractor Profit, G&A, & Conti	167
115217000	Intake 5 Tremie Concrete Under Intake Stru	55
115219000	Intake 5 Dewater Intake C'dam & Place Xbra	357
115221100	Intake 5 Place Concrete	355
115221200	Furnish and Place Rebar	200
115221300	Intake 5 Place Fill Concrete (flowable concrete)	32
Intake MEP		**557**
115223000	Intake 5 8'x8' Roller Gates, Guides & Opera	104
115224000	Intake 5 8'x8' Stoplog Gates, Guides	94
115224500	Intake 5 Box Culvert Stoplogs and Guides	60
115225000	Intake 5 Fish Screens, Panels, & Cleaning	215
115227100	Intake 5 MEP	383
115227600	Intake 5 Gantry Cranes & Rail	29
115229000	Intake 5 Finish Out	233



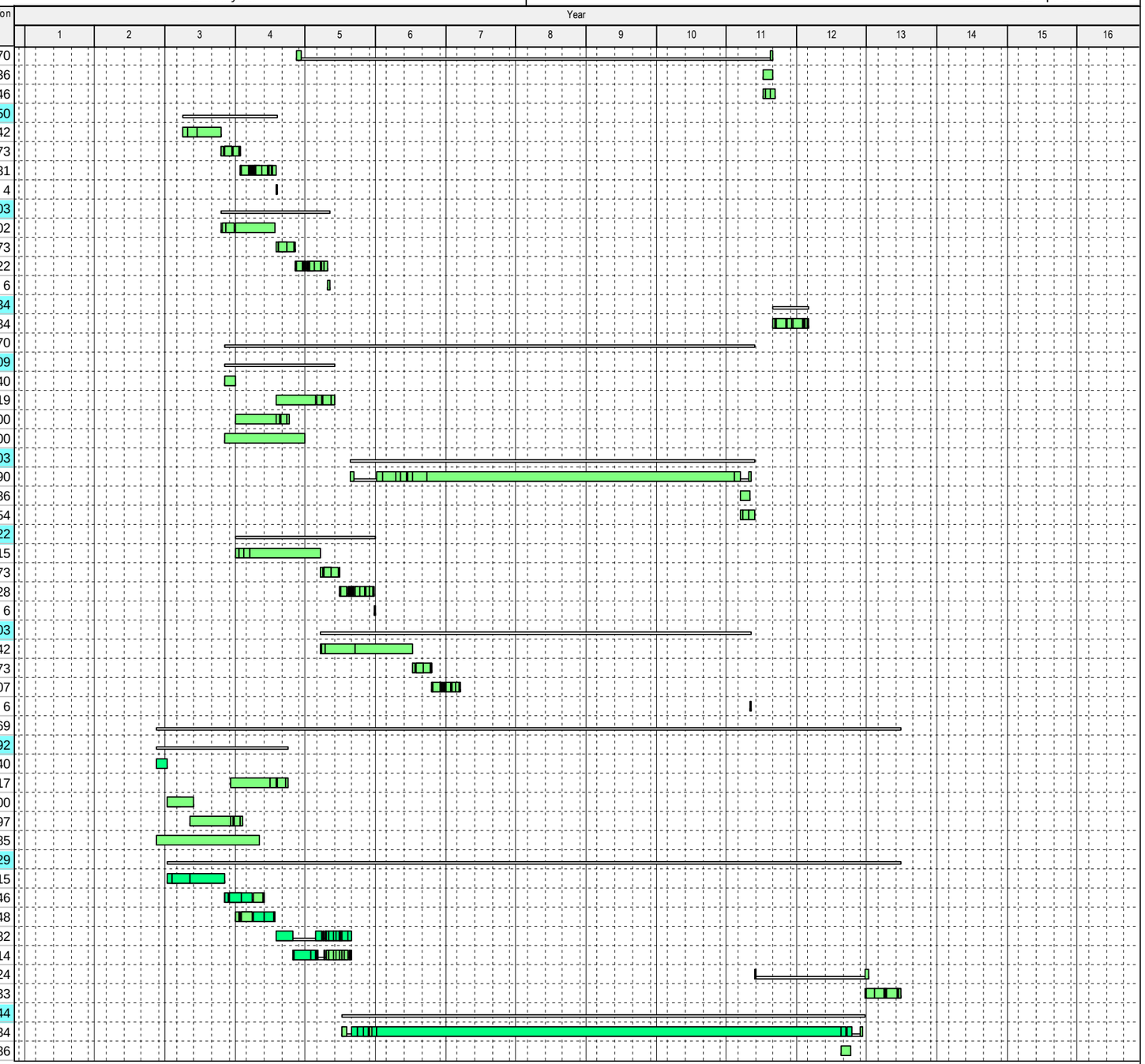
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	Box Culverts	533
	115222100 - Place Box Concrete 1st 170 ft	191
	115222200 - Furnish And Place Box Rebar 1st 170 ft	92
	115222300 - Excavate for Box 1st 170 ft	23
	115222400 - Backfill for Box 1st 170 ft	98
	115222500 - Place Box Concrete Gate Shaft & Outlet	64
	115222600 - Place Box Rebar Gate Shaft & Outlet	54
	115222700 - Excavate for Box Gate Shaft & Outlet	23
	115222800 - Backfill over Box Gate Shaft & Outlet	45
	115222900 - 24" Foundation Piles under Gate Structures	29
	Sedimentation Basins	250
	115255000 - Intake 5 Sediment Basin Drive Piles	19
	115257100 - Place Concrete	231
	115257200 - Furnish And Place Rebar	201
	Sedimentation Basin MEP	681
	115259000 - Intake 5 Sediment Basin Radial Gates & Stoplogs	140
	115261000 - Intake 3 Sediment Basin MEP & Finish Work	5
	115261000 - Intake 5 Sediment Basin MEP & Finish Work	681
	Site Restoration	66
	Intake No. 5 - Site Restoration	66
	TUNNELS AND SHAFTS	2944
	REACH 1	1568
	MOBILIZATION & INDIRECTS	138
	21100425 - Reach 1 Mobilize & Setup Main Construction Site	5
	22200516 - Reach 1 RTM Prep	69
	22200522 - Reach 1 Work site area & segment pad	133
	TUNNEL REACH 1	1563
	21300440 - Reach 1 Tunnel	1561
	21300445 - Reach 1 Remove TBM	36
	21300460 - Reach 1 Remove Tunnel Utilities & Cleanup	32
	INTERMEDIATE SHAFT INTAKE 5 REACH 1	232
	216005 - Reach 1 Work Area for Pass through Shaft - Intake 5	33
	21600530 - Reach 1 D'Wall for Pass through Shaft - Intake 5	73
	21600535 - Reach 1 Excavate/build Pass through Shaft - Intake 5	126
	RECEPTION SHAFT INTAKE 3 REACH 1	255
	214005 - Reach 1 Work Area for Reception Shaft - Intake 3	50
	21400510 - Reach 1 D'Walls for Reception Shaft - Intake 3	95
	21400515 - Reach 1 Excavate/build Reception Shaft - Intake 3	169
	REACH 2	2601
	MOBILIZATION & INDIRECTS	328
	22100515 - Reach 2/1 Mobilize & Setup Site	40
	22200516 - Reach 2/1 Ring Levee and RTM area Borrow	244
	22200522 - Reach 2 Work site area & segment pad	133
	22200523 - Reach 2 RTM Prep	69
	DOUBLE LAUNCH SHAFT REACH 2/1	2415
	222005 - Reach 2/1 Work Area for Launch Shafts	190
	22200519 - Reach 2 D'Walls for Launch shaft	99
	22200520 - Reach 2 Excavate/build Launch Shaft	238
	22200525 - Reach 1 D'Wall for Launch shaft	108
	22200530 - Reach 1 Excavate/build Launch Shaft	1963
	22200531 - Reach 2/1 Launch Shaft Finishing	6
	TUNNEL REACH 2	1779
	22300530 - Reach 2 Tunnel	1733



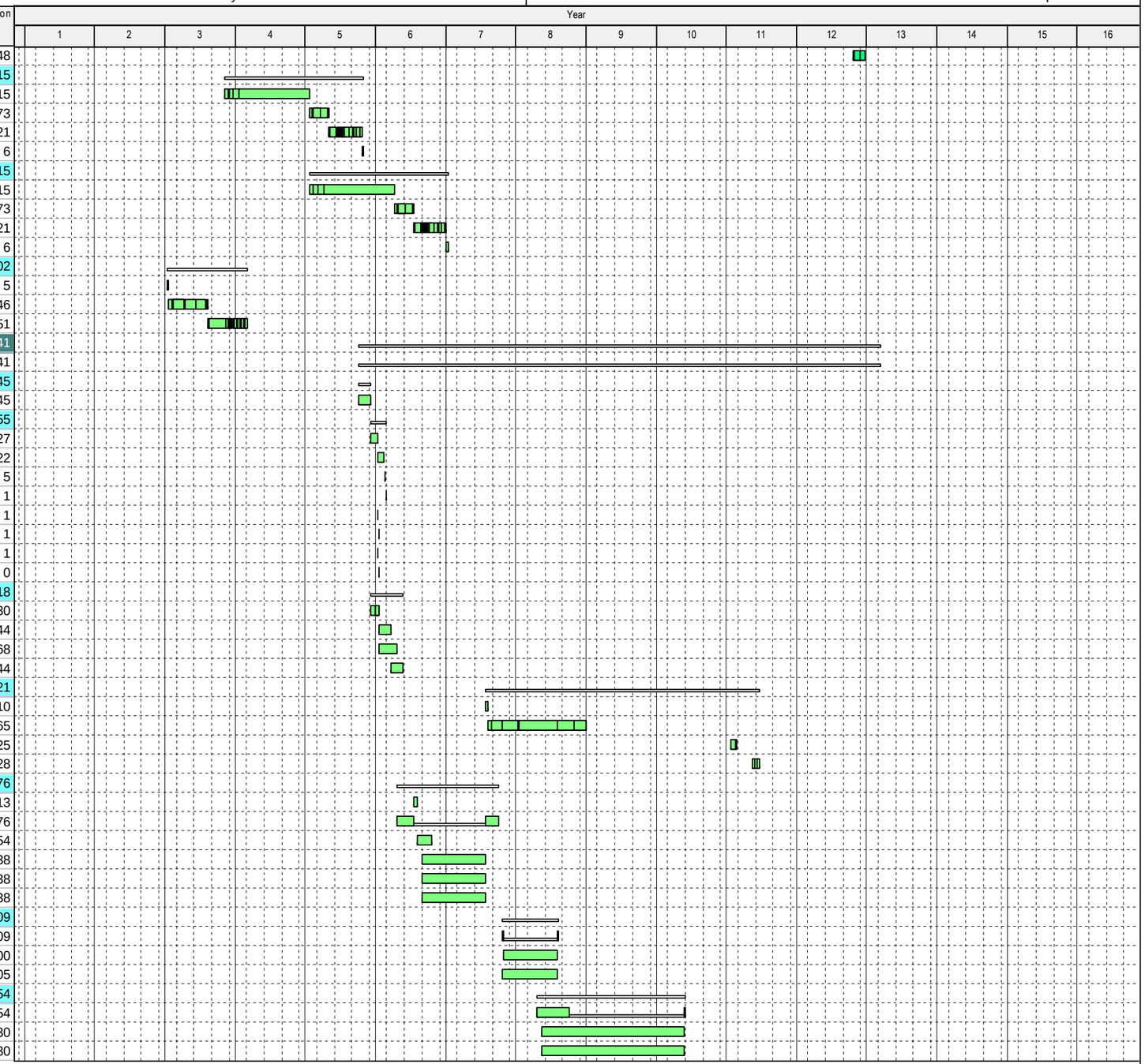
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
22300530	Reach 2 Tunnel 36 Foot	1770
22300535	Reach 2 Remove TBM	36
22300550	Reach 2 Remove Tunnel Utilities & Cleanup	46
	MAINTAINANCE SHAFT NEW HOPE TRACT	350
225006	Reach 2 Work Area for Maint Shaft - New Hope Tract	142
22500610	Reach 2 D'Walls for Maint Shaft - New Hope Tract	73
22500615	Reach 2 Excavate/build Maint Shaft - New Hope Tract	131
22500616	Reach 2 Maint Shaft Finishing - New Hope Tract	4
	MAINTAINANCE SHAFT CANAL ROAD	403
226006	Reach 2 Work Area for Maint Shaft - Canal Road	202
22600625	Reach 2 D'Walls for Maint Shaft - Canal Road	73
22600630	Reach 2 Excavate/build Maint Shaft - Canal Road	122
22600635	Reach 2 Maint Shaft Finishing - Canal Island	6
	Site Restoration	134
	Glanville Tract - Launch Shaft Site Restoration	134
	REACH 3	1970
	MOBILIZATION & INDIRECTS	409
23100005	Reach 3 Mobilize & Setup Main Site	40
23100006	Reach 3 Work site RTM Area preparation	219
23100006	Reach 3 Work site segment pad	200
23300050	Reach 3 Tunnel Plant & Equipment	300
	TUNNEL REACH 3	1503
23300020	Reach 3 Tunnel	1490
23300025	Reach 3 Remove TBM	36
23300040	Reach 3 Remove Tunnel Utilities & Cleanup	54
	MAINTAINANCE SHAFT KINGS ISLAND	522
234000	Reach 3 Work Area for Maint shaft - Kings island	315
23400096	Reach 3 D'Wall for Maint Shaft - Kings Island	73
23400097	Reach 3 Excavate/build Maint Shaft - Kings Island	128
23400098	Reach 3 Shaft Finishing - Kings Island	6
	RECEPTION SHAFT TERMINUS TRACT	1603
234000	Reach 3(4) Work Area for Reception Shaft - Terminus Track	342
23400014	Reach 3(4) D'Wall for Reception Shaft - Terminus Track	73
23400015	Reach 3 (4) excavate/build reception Shaft - Terminus Track	107
2420016	Reach 3(4) Reception Shaft Finishing - Terminus Track	6
	REACH 4	2769
	MOBILIZATION & INDIRECTS	492
24100115	Reach 4 Mobilize & Setup Site - SF North	40
24100116	Reach 4 RTM site preperation - SF North	217
24100120	Reach 3/4 Work site Levee improvements	100
24200126	Reach 4 Work Area Segment pad - SF North	197
24300155	Reach 4 Tunnel Plant & Equipment	385
	LAUNCH SHAFT SF NORTH	2729
2420001	Reach 3/4 Work Area for Launch Shaft - Lower Roberts	215
2420005	Reach 4 D'walls for Launch Shaft - Lower Roberts	146
2420006	Reach 3 D'Walls for Launch Shaft - Lower Roberts Island	148
2420007	Reach 4 Excavate/build Launch Shaft - Lower Roberts	282
2420008	Reach 3 Excavate/build Launch Shaft - Lower Roberts Island	214
24200120	Reach 3/4 Launch Shaft Finishing	424
	Lower Roberts Island - Launch Shaft Site Restore	133
	TUNNEL REACH 4	1944
24300125	Reach 4 Tunnel	1934
24300130	Reach 4 Remove TBM	36



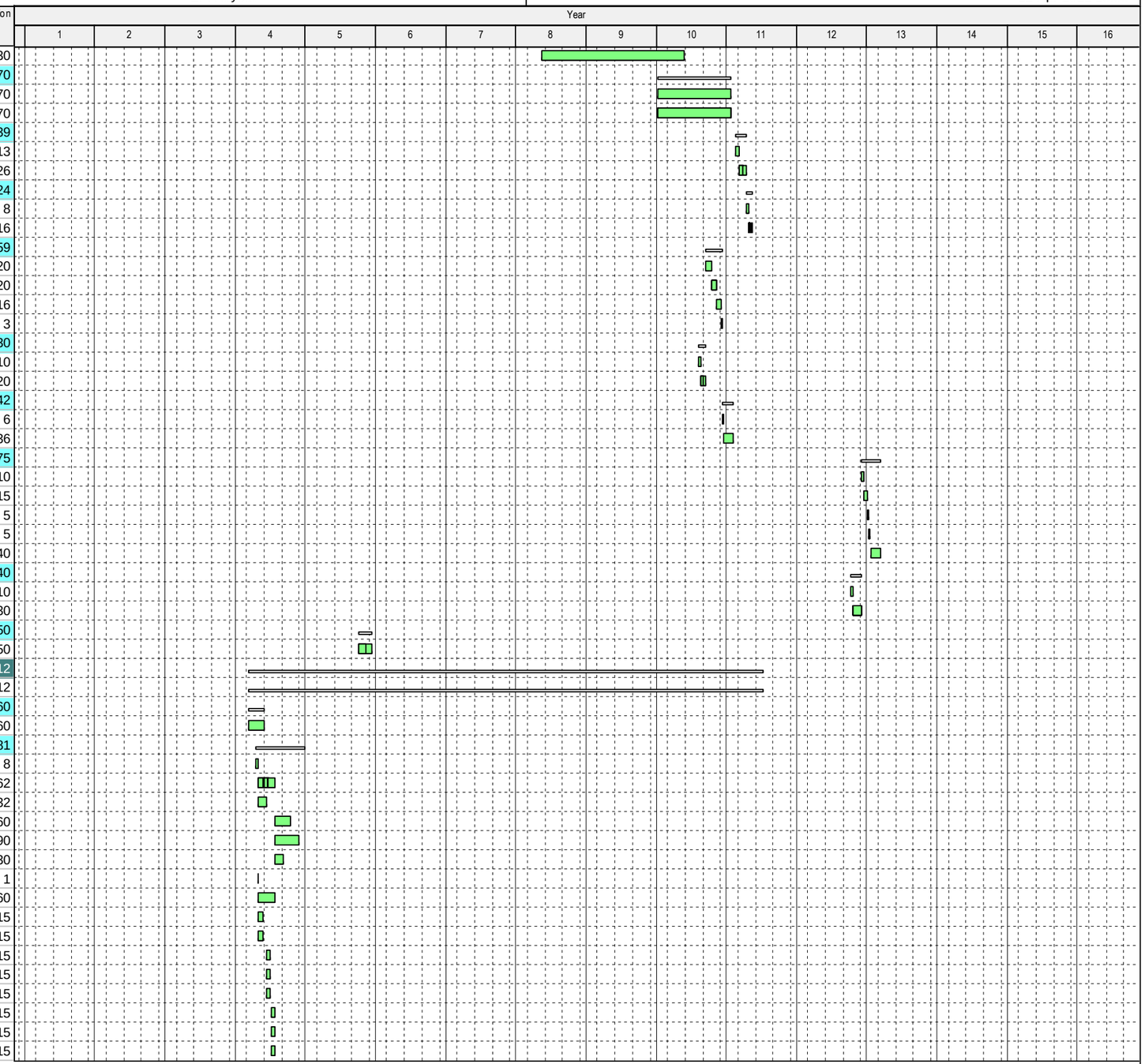
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
24300145	Reach 4 Remove Tunnel Utilities & Cleanup	48
	MAINTAINANCE SHAFT UPPER JONES TRACT	515
234000	Reach 3 Work Area for Maint shaft - Upper Jones Tract	315
23400096	Reach 3 D'Wall for Maint Shaft - Upper Jones Tract	73
23400097	Reach 3 Excavate/build Maint Shaft - Upper Jones Tract	121
23400098	Reach 3 Shaft Finishing - Upper Jones Tract	6
	MAINTAINANCE SHAFT UNION ISLAND	515
234000	Reach 3 Work Area for Maint shaft - Union Island	315
23400096	Reach 3 D'Wall for Maint Shaft - Union Island	73
23400097	Reach 3 Excavate/build Maint Shaft - Union Island	121
23400098	Reach 3 Shaft Finishing - Union Island	6
	RECEPTION SHAFT BETHANY COMPLEX	302
242001	Reach 4 Work Area for Reception Shaft	5
24200187	Reach 4 D'Wall for Reception Shaft	146
24200189	Reach 4 Excavate/build Reception shaft	151
	SURGE BASIN	1941
	South Surge Basin	1941
	Mobilization & Overhead	45
331003000	Surge Basin Equipment Mobilization	45
	Temporary Facilities	55
331007110	SB Contractor's Office	27
331007120	SB Shops & Warehouse (No Rebar Shop)	22
331007130	SB Other Structures	5
331007210	SB Site Roads & Site Work	1
331007310	SB Electrical Supply & Distribution	1
331007330	SB Telephone Installation	1
331007340	SB Water Supply & Distribution	1
331007350	SB Sewer Collection & Treatment	0
	Rebar Shop	118
331015110	RS Base Slabs	30
331015200	Rebar Shop Pre-Engineered Building	44
331015310	RS Furnish & Install Overhead Cranes	68
331015400	Rebar Shop Miscellaneous Equipment	44
	Earthworks	1021
332005000	Surge Basin Clear & Grub/Demolition	10
332010000	Surge Basin E xcavation & Demo'n	365
332015000	Surge Basin Ramp Construction	25
334050000	Surge Basin Finish Out	28
	Diaphram Walls	376
333010100	Level Land & Prepare for Diaphragm Wall Cont.	13
333010200	Slurry Wall Mobe and Demobe	376
333010310	Set Guide Walls	54
333010320	Excavate (Hydromill) Slurry Trench	238
333010330	Reinforcing Steel	238
333010340	Concrete	238
	Tie Backs	209
333020010	Mobilize Tieback Spread	209
333020030	Install Tiebacks	200
333020060	Tieback Contractor Profit, G&A, & Conti	205
	Drilled Piers	554
333030020	Mobilize Drill Spread	554
333030040	Drill 72"' Pier Shafts	530
333030050	Reinforcing Steel	530



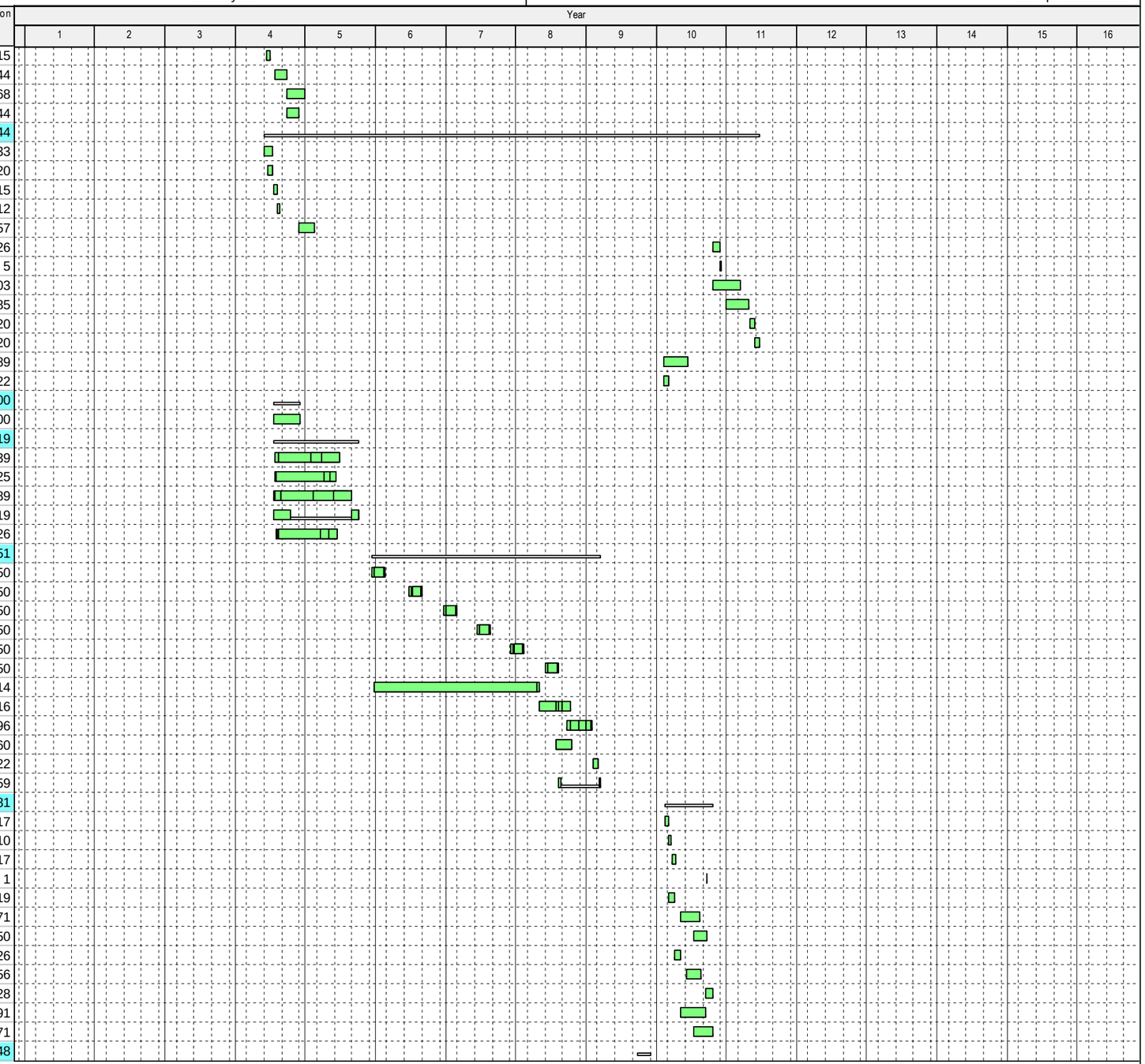
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
333030060	Place Fill Concrete	530
	Invert Slab	270
334010110	SB IS Ground Preparation	270
334010130	SB IS Concrete	270
	Ramp Slab	39
334010210	SB RS Ground Preparation	13
334010230	SB RS Concrete	26
	Laydown Slab	24
334010310	SB LS Ground Preparation	8
334010330	SB LS Concrete	16
	Overflow Weir	59
334020110	SB OW Surface Preparation	20
334020130	SB OW Concrete	20
334020410	SB Procure OW Sluice Gates	16
334020420	SB OW Sluice Gates Installation	3
	Reception Shaft Collar	30
334020210	SB RSC Surface Preparation	10
334020230	SB RSC Concrete	20
	Gate Shaft Conduit Closure	42
334020310	SB GS Procure Stoplogs & SS Guides	6
334020320	SB GS Install Stoplog Guides	36
	Gantry Crane Bridge	75
334030110	SB GCB Structural Steel Procure & Deliver	10
334030120	SB GCB Structural Steel Erection	15
334030310	SB GCB Crane Rails	5
334030320	SB GCB Railings	5
334030400	Surge Basin Gantry Crane	40
	Gantry Crane Bridge Slab	40
334030210	SB GCBS Stay-in-Place Forms	10
334030230	SB GCBS Concrete	30
	Dewatering System	50
334040000	Dewatering System	50
	PP PUMPING PLANT	1912
	PUMPING PLANTS	1912
	Mobilization & Overhead	60
441003000	Mobilize Pump Plant Contractor	60
	Temporary Facilities	181
441009010	Place Foundation Gavel Bedding	8
441009020	Place Foundation Concrete	62
441009030	Furnish And Place Rebar	32
441009040	Contractors Office	60
441009050	Shops & Warehouse	90
441009060	Other Structures	30
441009070	Site Roads & Parking	1
441009080	Site Utilities	60
441009090	Temporary Water & Sewer Treatment Plants	15
441017520	RS Base Slabs Ground Preparation	15
441017540	RS Base Slabs Concrete Placing	15
441017550	RS Base Slabs Concrete Finishing	15
441017560	RS Base Slabs Formwork	15
441017570	RS Base Slabs Point & Patch	15
441017580	RS Base Slabs Cure & Cleanup	15
441017590	RS Base Slabs Treat CJ	15



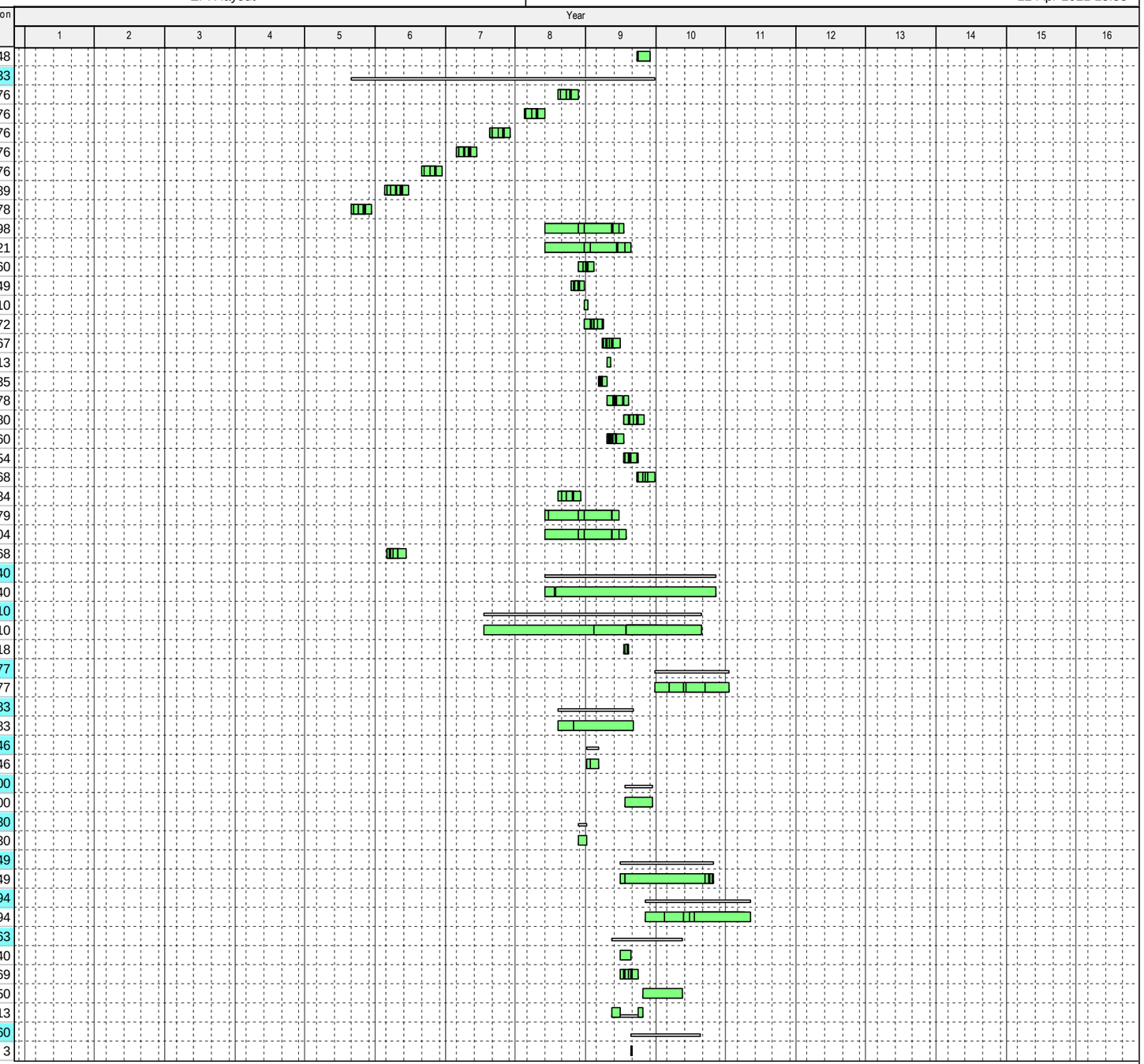
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
441017600	RS Base Slabs Reinforcing Steel	15
441017610	Rebar Shop Pre-Engineered Building	44
441017630	RS Furnish & Install Overhead Cranes	68
441017640	Rebar Shop Miscellaneous Equipment	44
	Site Work	1844
442005010	Clear and Grub Pump Station Area	33
442005030	Site Grading to Elev 41	20
442005040	Gravel Plating	15
442005110	Aggregate Base Plating under Roads/Parking Areas	12
442005120	Storm Drains & Culverts	57
442005130	Curbs, Gutters, And Sidewalks	26
442005140	Pave Roads & Parking Lots	5
442005150	Underground Utilities	103
442005160	Landscaping	85
442005170	Area Lighting	20
442005180	Added Security Fencing & Gates	20
443150010	Site Electrical Work	89
443160010	SCADA Electrical Work	22
	Water Control	100
442005020	Deep Wells	100
	Diaphram Wall Construction	319
442015	Diaphram Walls Below Foundation Slab	239
442015	Diaphram Walls Full Height	225
442015	Exterior Walls	289
442015	Mobilization & Overhead	319
442015	Wet Well Perimeter Diaphram Walls	226
	Excavation	851
442020	Excavate Level El. 42 to -2	50
442021	Excavate Level El. -2 to -27	50
442022	Excavate Level El. -27 to -52	50
442023	Excavate Level El. -52 to -77	50
442025	Excavate Level El. -77 to -88.25	50
442026	Excavate Level El. -88.25 to -110.5	50
442030	Excavate Wet Well	614
442035	Excavate Mechanical Room	116
442036	Excavate Surge Tank Vault	96
442045	Drilled Piers for Mechanical Room	60
442045	Drilled Piers for Vault	22
442045	Mobilization & Overhead	159
	15' Dia Bethany Reservoir Pipe to Y	181
4420510	Mass Exc. for 16' Pipe, Ramp to 'Y'	17
4420520	Furnish and Plance Bedding	10
4420520	Place Cradles on Bedding	17
4420530	Cathodic Protection	1
4420530	Furnish Materials to Site, Unload and Store	19
4420530	Line-up and Stringer Bead	71
4420530	Mortor Line Pipe	50
4420530	String Pipe	26
4420530	Weld Pipe	56
4420540	Cure and Cleanup	28
4420540	Furnish and Place Flowable Concrete	91
4420550	Place Backfill from Stockpile	71
	Remove Section of Diphram Walls - WW Pipe, Elec, Conduit	48



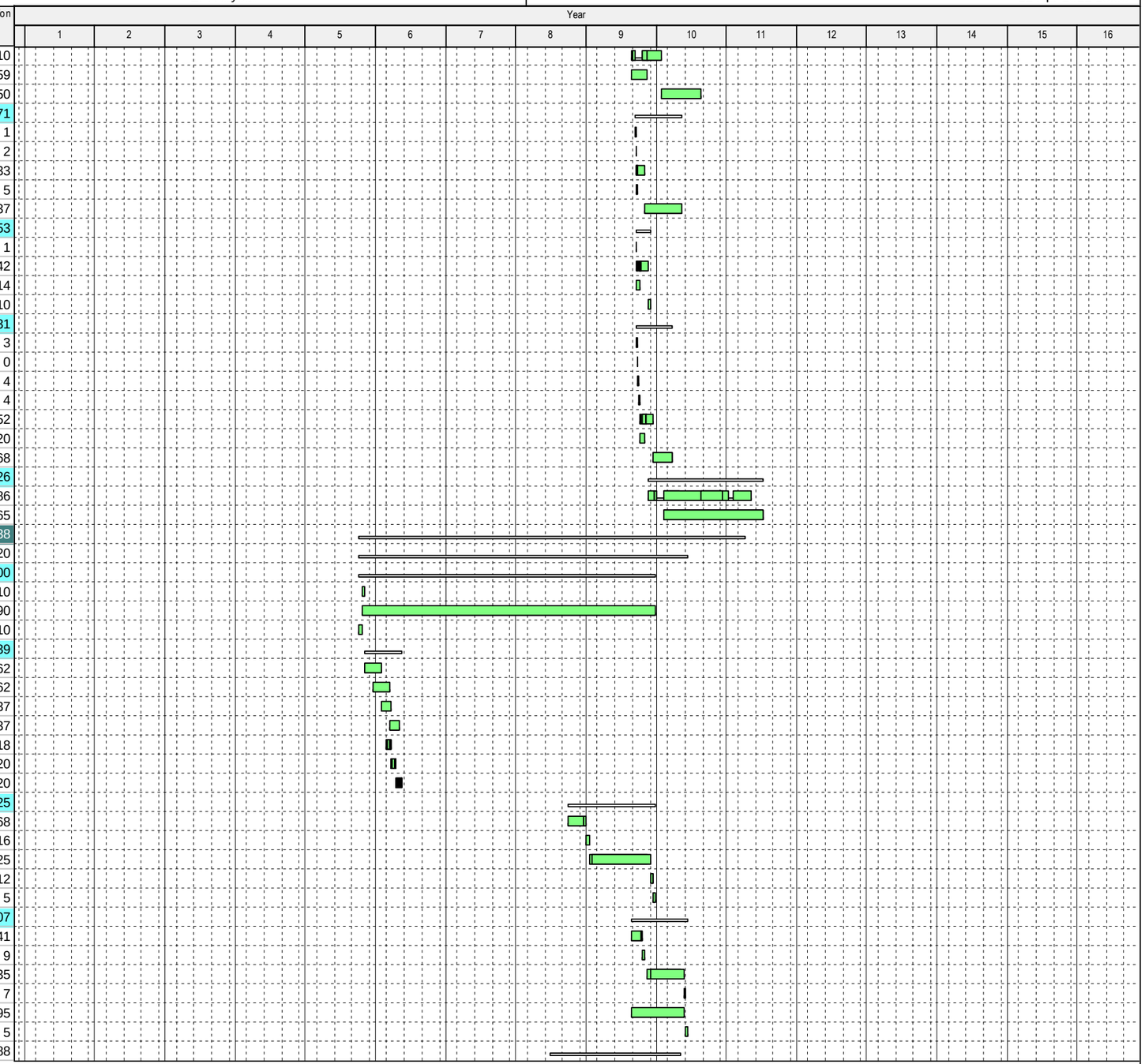
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	442075 - Remove Section of Diphram Walls - WW Pipe, Elec, Conduit	48
	Concrete Decks & Walls	1133
	443010 - Foundation Slab @ El. -100.50	76
	443011 - Intermediate Slab @ El. -86.25	76
	443012 - Intermediate Pump Motor Slab @ El. -72.00	76
	443013 - Intermediate Deck @ El. -47.00	76
	443014 - Intermediate Deck @ El. -22.00	76
	443015 - Operating Deck @ El. 3.00	89
	443016 - Top Deck @ El. 47.00	78
	443020 - Pump Plant Vertical Concrete Wall Liners	298
	443021 - Interior Concrete Walls	321
	443022 - Concrete Fill Around Pump Inlets	60
	443023 - Mechanical Room Concrete Invert Slab	49
	443023 - Mechanical Room Concrete Walls	10
	443024 - Mechanical Room Concrete Walls	72
	443025 - Mechanical Room Roof Slab	67
	443030 - Surge Tank Valve Vault Concrete Walls	13
	443030 - Surge Tank Valve Vault Invert Slab	35
	443031 - Surge Tank Valve Vault Concrete Walls	78
	443032 - Surge Tank Valve Vault Concrete Roof	80
	443035 - Surge Tank Invert Slab	60
	443036 - Surge Tank Concrete Walls	54
	443037 - Surge Tank Concrete Roof Slab	68
	443040 - Wet Well Concrete Invert Slab	84
	443041 - Wet Well Intermediate Slabs	279
	443042 - Wet Well Concrete Walls / Braces	304
	443043 - Wet Well Concrete Roof Slab	68
	Miscellaneous Metals	640
	443044000 - Pump Plant Miscellaneous Metals	640
	500 cfs Pumps & Motors	810
	443045000 - 500 CFS Pumps & Motors (14 ea)	810
	443057000 - Wet Well Dewatering Pumps	18
	108" Steel Pipe to 15' RW Connection	277
	443047000 - 108" Dia. Steel Pipe, Valves, to 15' Dia. RW Conn.	277
	Bulkheads	283
	443049010 - Bulkheads	283
	Gantry Cranes	46
	443050000 - Pump Plant Overhead Gantry Cranes	46
	Elevators	100
	443052000 - Service Elevators	100
	Pump Plant Structural Canopies	30
	443055000 - Pump Plant Structural Canopies (2 ea)	30
	HVAC Systems	349
	443060000 - HVAC Mechanical Systems	349
	Valve Vault Piping &/ Valves	394
	443065000 - Valve Vault Piping & Valves	394
	Pump Plant MCC/ Electrical Bldg.	263
	443090010 - Furnish And Place Rebar	40
	443090020 - Foundation Slab	69
	443090030 - Building Construction And Equipment	150
	443090100 - Excavation and Backfill	113
	Equipment Storage Bldg	260
	443095010 - Place Foundation Gavel Bedding	3



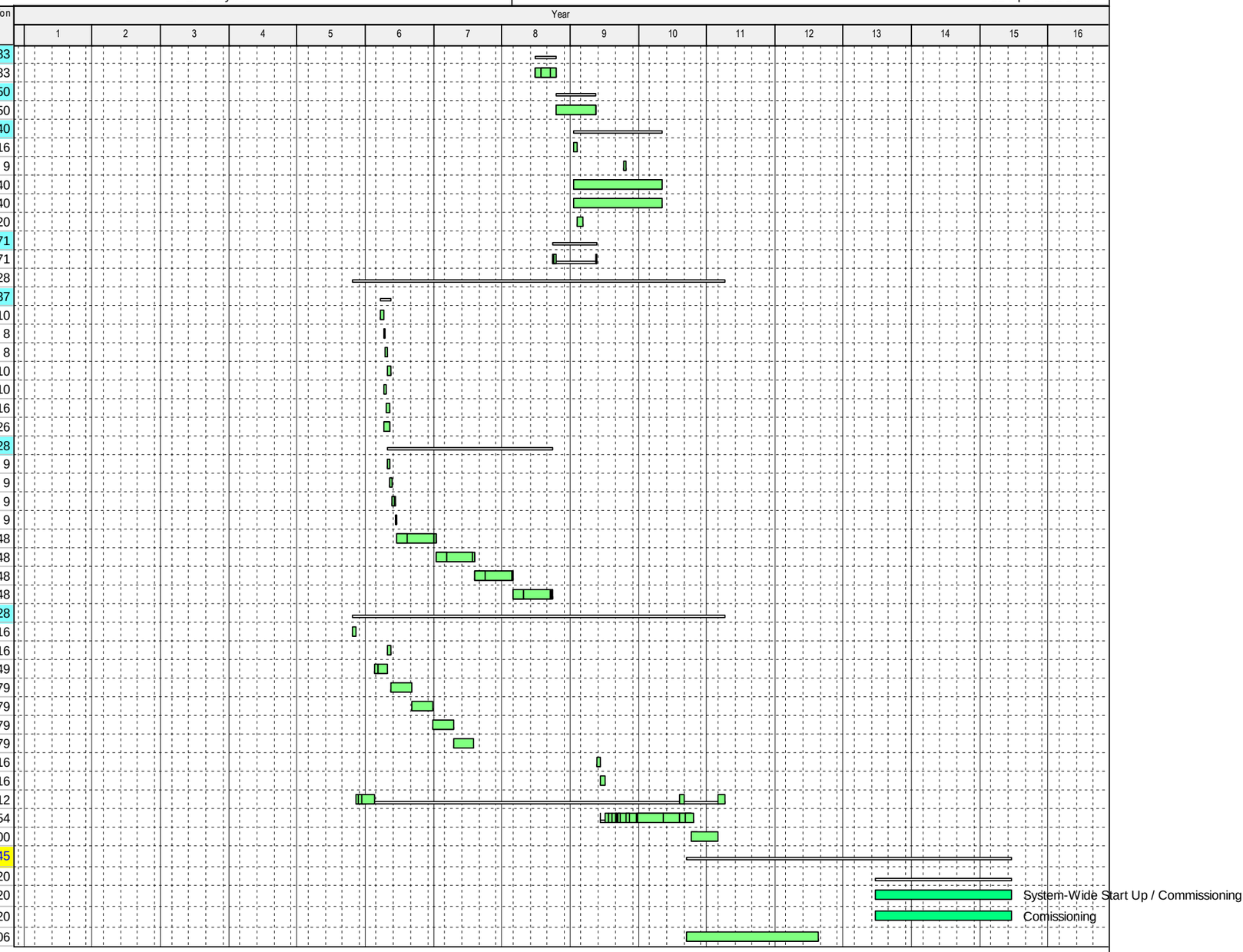
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	443095020 - Place Foundation Slab Concrete	110
	443095030 - Furnish And Place Rebar	59
	443095040 - Building Construction And Equipment	150
	Storage Area & Yards	171
	443100020 - Place Gavel Bedding	1
	443105010 - Place Foundation Gravel Bedding	2
	443105020 - Place Foundation Concrete	33
	443105030 - Furnish And Place Rebar	5
	443105040 - Building Construction And Equipment	137
	Generator Bldg.	53
	443106010 - Place Foundation Gravel Bedding	1
	443106020 - Place Foundation Concrete	42
	443106030 - Furnish And Place Rebar	14
	443106040 - HVAC Yard Equipment Install	10
	Substation & Elec. Distribution	131
	443110010 - Excavate/Grade Foundation Slab	3
	443110020 - Provide Foundation Piles (50 LF)	0
	443110030 - Drive Foundation Piles	4
	443110040 - Place Gavel Bedding	4
	443110050 - Place Concrete	52
	443110060 - Furnish And Place Rebar	20
	443120010 - Substation Electrical Work	68
	Electrical	426
	443130010 - Pump Plant Buildings Electrical Work	386
	443140010 - Pump Plant Electrical Work	365
	BETHANY AQUEDUCT	1438
	CUT AND COVER PIPELINE	1220
	MOBILIZATION AND FACILITIES	1100
	812005 - Mobilization - Section 1	10
	812065 - Indirect Cost - Section 1	1090
	813005 - Mobilization - Section 2	10
	SITE PREP AND ACCESS	139
	812010 - Clear and Grub - Section 1	62
	812015 - Strip and Stock Pile Topsoil - Section 1	62
	813010 - Clear and Grub - Section 2	37
	813015 - Strip and Stock Pile Topsoil - Section 2	37
	813046 - Bridges at Jones Penstocks	18
	813047 - Bridges at BBID	20
	813048 - Bridges atGas Line Crossing	20
	SECTION 1 - PUMP PLANT TO JONES CROSSING	325
	812020 - Trench Excavation - Section 1	68
	812025 - Place Trench Stabilization Material - Section 1	16
	812035 - Backfill - Section 1	225
	812040 - Compact and Finish - Section 1	12
	812055 - Site Restoration and Demobilization - Section 1	5
	SECTION 2 - JONES CROSSING TO BETHANY TUNNEL	207
	813020 - Trench Excavation - Section 2	41
	813025 - Place Trench Stabilization Material - Section 2	9
	813035 - Backfill - Section 2	135
	813040 - Compact and Finish - Section 2	7
	813045 - Dewatering - Section 2	195
	813055 - Site Restoration and Demobilization - Section 2	5
	PIPE INSTALLATION	488



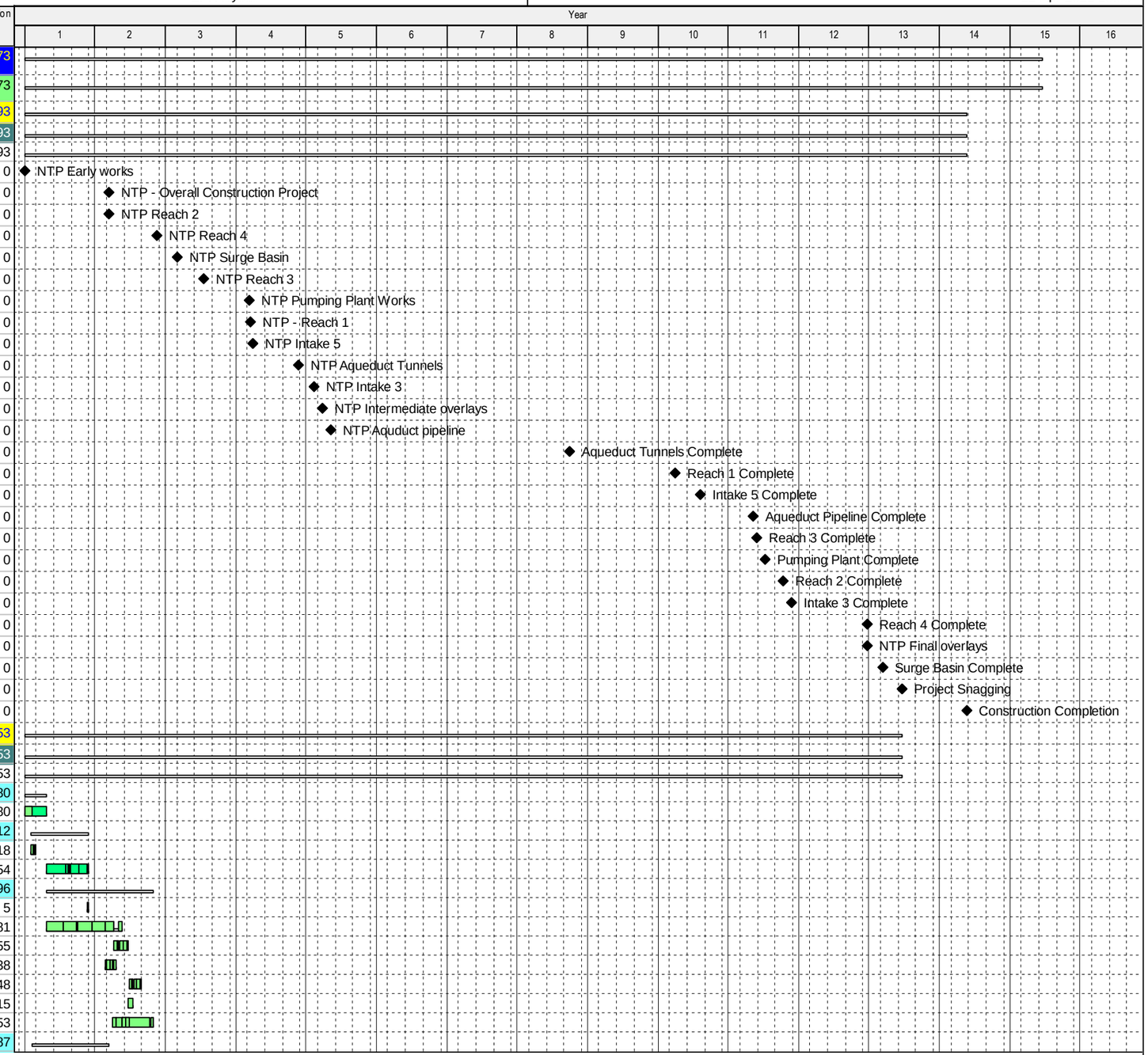
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	INSTALL PIPES - JONES CROSSING	83
	815050 - Installation of Pipes at Crossing	83
	INSTALL PIPES - BETHANY TUNNELS	150
	815055 - Installation of Pipes at Tunnels and Shafts	150
	INSTALL PIPES - CUT AND COVER	340
	812030 - Furnish Concrete Cradles - Section 1	16
	813030 - Furnish Concrete Cradles - Section 2	9
	815020 - Installation of Pipes at Open Cut	340
	815040 - Internal Mortar Lining	340
	815045 - Cathodic Protection	20
	INSTALL PIPES - BETHANY SHAFTS	171
	815055 - Installation of Pipes at Tunnels and Shafts	171
	AQUEDUCT TUNNELS AND SHAFTS	1428
	TUNNEL PORTALS	37
	851010 - Mobilize Portals	10
	851020 - Excavate East Portal	8
	851025 - Excavate West Portal	8
	851030 - Excavate Single Portal	10
	851031 - Portal Cut Support	10
	851032 - Site Setup Portals	16
	851040 - Indirect Cost	26
	AQUEDUCT TUNNELS	628
	852020 - Excavate Short Tunnel 1	9
	852025 - Excavate Short Tunnel 2	9
	852030 - Excavate Short Tunnel 3	9
	852035 - Excavate short Tunnel 4	9
	852040 - Excavate Long Tunnel 1	148
	852045 - Excavate Long Tunnel 2	148
	852050 - Excavate Long Tunnel 3	148
	852055 - Excavate Long Tunnel 4	148
	OUTLET SHAFT AND STRUCUTURE	1428
	852010 - Mobilize Shaft site	16
	852015 - Site Setup Tunnels & Shafts	16
	852060 - Excavate for Outlet structure	49
	852060 - Excavate Shaft 1	79
	852065 - Excavate Shaft 2	79
	852070 - Excavate Shaft 3	79
	852075 - Excavate Shaft 4	79
	853010 - Mobilize Reservoir Structure	16
	853015 - Site Setup Reservoir Structure	16
	853020 - Build Reservoir Cofferdam	1412
	853020 - Build Reservoir Structure	354
	853024 - Discharge MEP	100
	CM COMMUNICATION & CONTROL / COMMISSIONING	1245
	Commissioning	520
802	System-Wide Start Up / Commissioning	520
P10010	Comissioning	520
	Communicatrion & Control	506



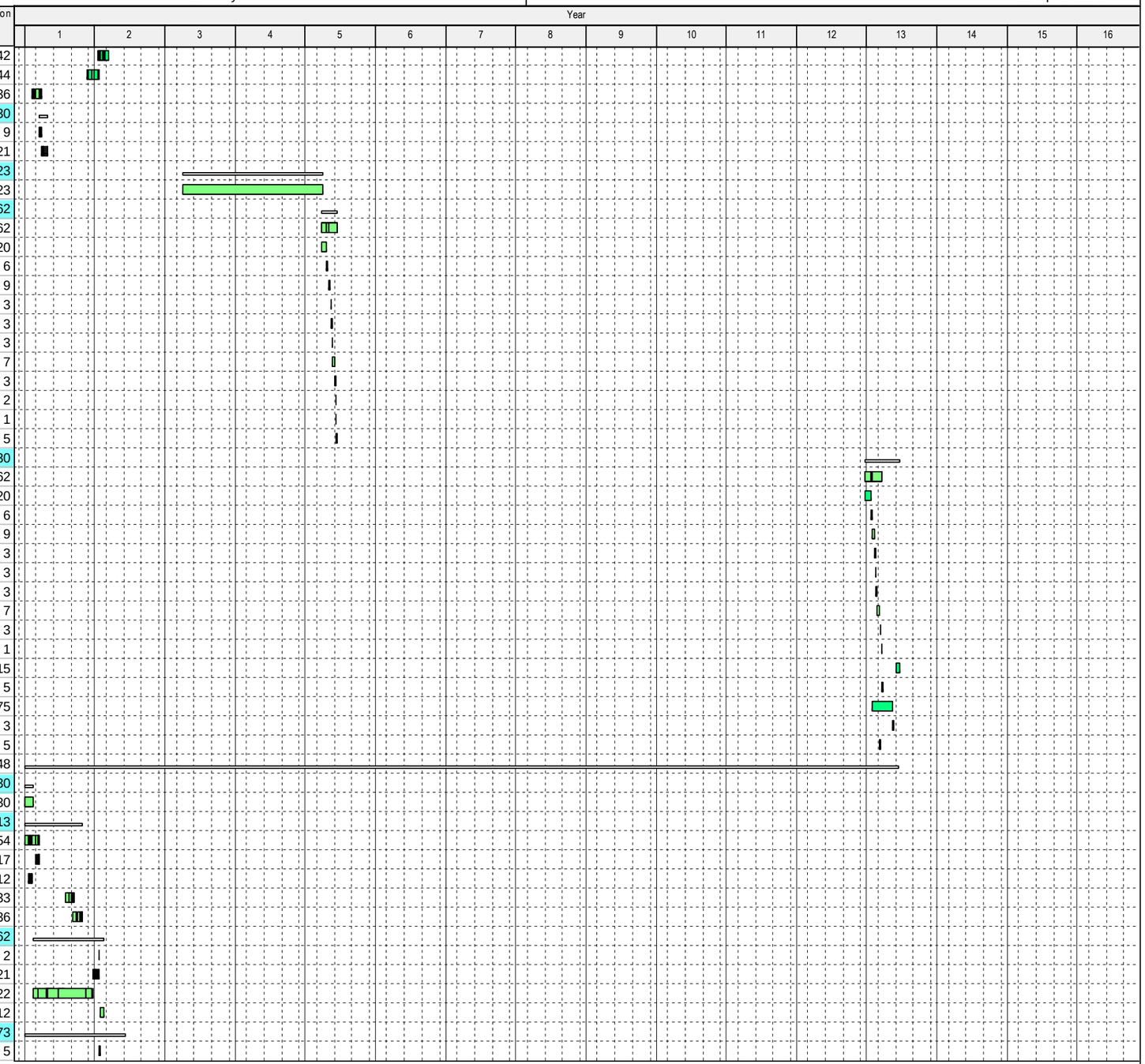
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
DELTA CONVEYANCE PROJECT EDM - Bethany 2B 2020-10 Footprin		3773
CO CONSTRUCTION		3773
CO.PG PROGRAMMATIC MANAGEMENT		3493
CONSTRUCTION MILESTONES		3493
Construction Milestones		3493
G1010	NTP Early works	0
A1000	NTP - Overall Construction Project	0
E1000	NTP Reach 2	0
C1000	NTP Reach 4	0
J1000	NTP Surge Basin	0
D1000	NTP Reach 3	0
K1000	NTP Pumping Plant Works	0
F1010	NTP - Reach 1	0
G1000	NTP Intake 5	0
B1000	NTP Aqueduct Tunnels	0
G9010	NTP Intake 3	0
I1000	NTP Intermediate overlays	0
G1020	NTP Aquduct pipeline	0
B9000	Aqueduct Tunnels Complete	0
F9002	Reach 1 Complete	0
G9020	Intake 5 Complete	0
G1030	Aqueduct Pipeline Complete	0
D9000	Reach 3 Complete	0
K9000	Pumping Plant Complete	0
E9000	Reach 2 Complete	0
G9000	Intake 3 Complete	0
C9000	Reach 4 Complete	0
I1010	NTP Final overlays	0
J9000	Surge Basin Complete	0
Z9000	Project Snagging	0
Z9010	Construction Completion	0
CO.EW CONSTRUCTION EARLY WORKS		3253
ROAD WORKS		3253
NORTH ROAD WORKS		3253
MOB/FACILITIES NORTH		80
771003 - Mobilization North		80
PARK AND RIDES N		212
771314000-Employee Park & Ride - Rio Vista - Both		18
771315000-Employee Park & Ride - Hood Franklin - Both		154
ACCESS TO INTAKES		396
771120000 - Hood Franklin Road Widening		5
771130000-Intakes Access Road - Both		281
771150000 - C-E-05Intake Access Road		55
771460000 - Lambert Road Widening		38
771840000 - Intake #3		48
771860000-Intakes - SR160 - Both		15
7719900-Intake #2 Access Road - Option		153
ACCESS TO TWIN CITIES		287



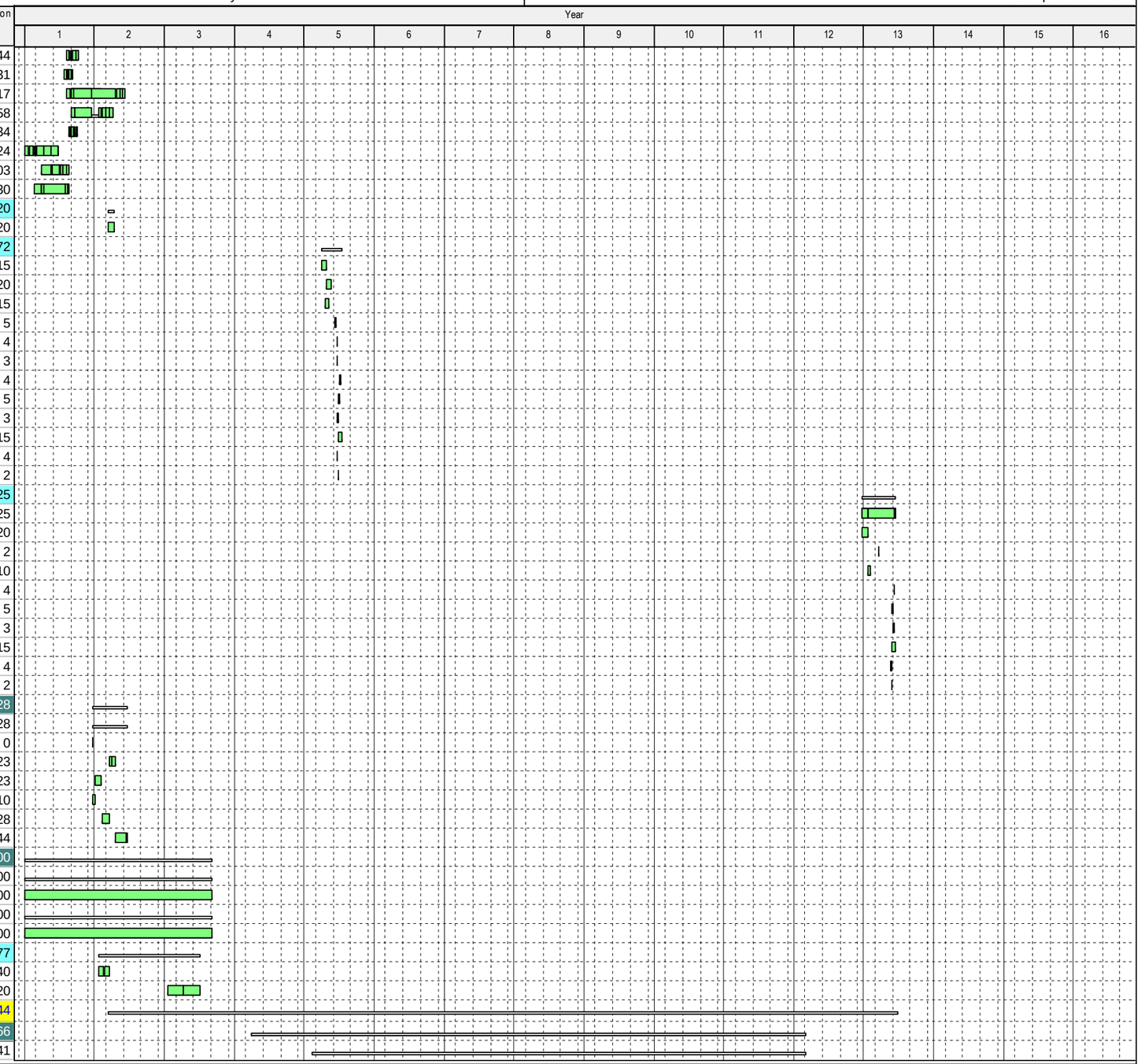
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	771420000 - Dierrsen Road Paving	42
	771430000 - Franklin Blvd Improvements at Dierrsen	44
	771470000 - Twin Cities Road Widening (East)	36
	ACCESS TO N MID DELTA	30
	771710000-New Hope Tract Road - East	9
	771730000-Highway 12 /Terminous Tract Widening - East	21
	ROAD MAINTENANCE NORTH	523
	771710000-New Hope Tract Road - East	523
	INTERMEDIATE OVERLAYS	62
	771006200-Contractor Site Mgmt & Facilities - Intrm Ovrly B	62
	771006300-Mobilization - Intrm Overlay - Both	20
	771120000-Hood Franklin Road - Both	6
	771130000-Intakes Access Road - Both	9
	771150000-C-E-05Intake Access Road - Both	3
	771420000-Dierrsen Road Paving - Both	3
	771430000-Franklin Blvd Improvements at Dierrsen - Both	3
	771460000-Lambert Road Widening - Both	7
	771470000-Twin Cities Road Widening (East) - Both	3
	7717700-Canal Ranch Tract - East	2
	771840000-Intake #3 Access Road - Both	1
	7719900-Intake #2 Access Road - Option	5
	FINAL OVERLAYS	130
	771006500-Contractor Site Mgmt & Facilities - Final Ovrly B	62
	771006600-Mobilization - Final Overlay - Both	20
	771120000-Hood Franklin Road - Both	6
	771130000-Intakes Access Road - Both	9
	771150000-C-E-05Intake Access Road - Both	3
	771420000-Dierrsen Road Paving - Both	3
	771430000-Franklin Blvd Improvements at Dierrsen - Both	3
	771460000-Lambert Road Widening - Both	7
	771470000-Twin Cities Road Widening (East) - Both	3
	771840000-Intake #3 Access Road - Both	1
	771860000-Intakes - SR160 - Both	15
	7718700-Kings Island Access Road - East	5
	7718800-Union Island Access Road	75
	7719000-Byron Hwy Frontage Rd	3
	7719900-Intake #2 Access Road - Option	5
	SOUTH ROAD WORKS	3248
	MOB/FACILITIES SOUTH	30
	771003-Mobilization - South	30
	PARK AND RIDES S	213
	771310000 - Employee Park & Rides - Byron	54
	771311000-Employee Park & Ride - Bethany	17
	771313000-Employee Park & Ride - I-05& Charter Way	12
	7713170-Employee Park & Ride - W Grant Line Rd	33
	7713180-Employee Park & Ride - Pavillion Pkwy	36
	ACCESS TO S MID DELTA	262
	7717700-Canal Ranch Tract - East	2
	7718200 - Upper Jones Tract Road - East	21
	771830000-Lower Roberts Island Road - East	222
	7718800-Union Island Access Road	12
	ACCESS TO SOUTHERN COMPLEX	373
	7718700-Kings Island Access Road - East	5



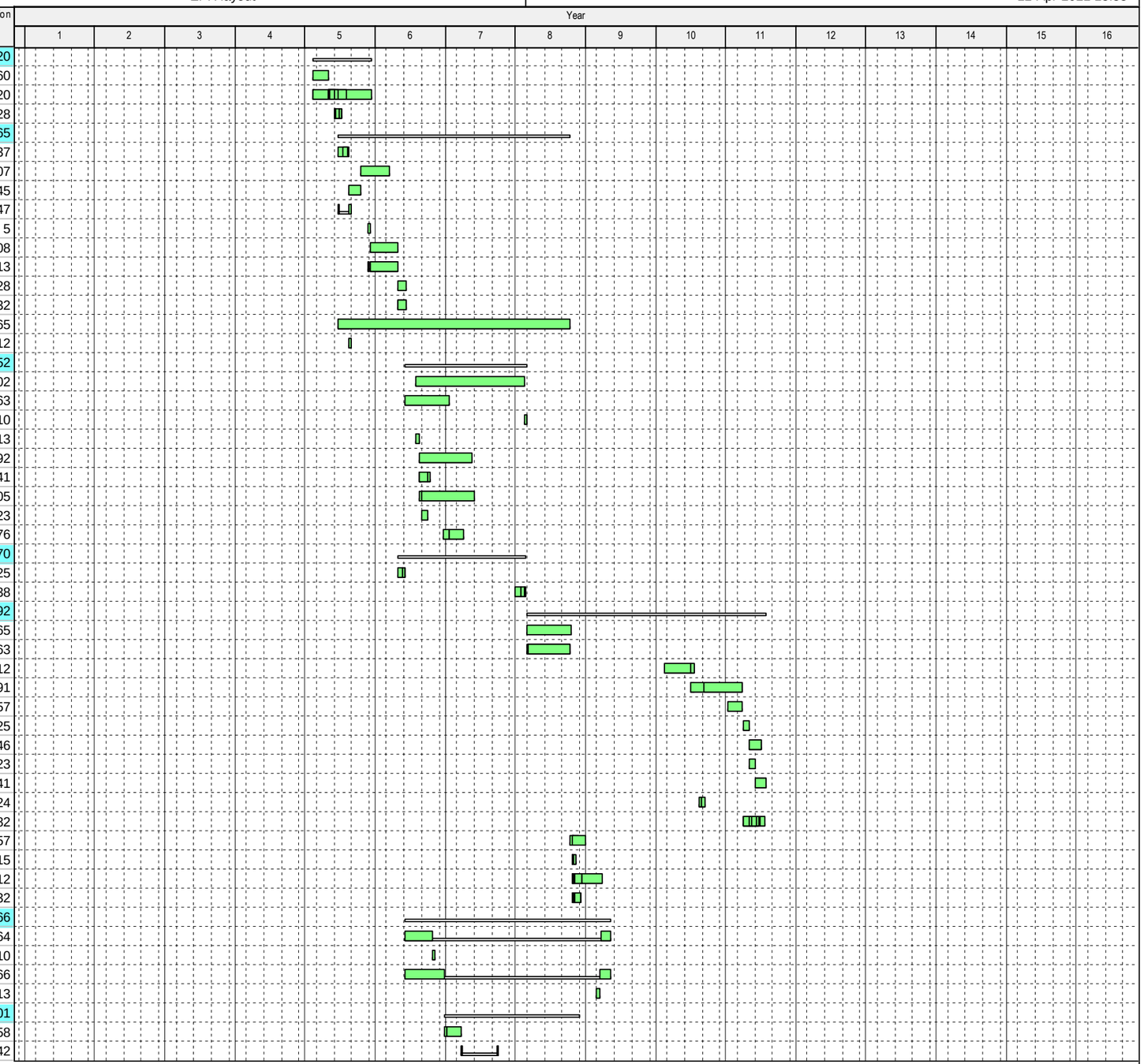
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	7719000-Byron Hwy Frontage Rd	44
	7719100-Byron Hwy	31
	7719200-Byron Hwy - Lindemann Rd Intersection	217
	7719300-Mountain House Shaft Access Road	158
	7719400-Kelso Road Widening	34
	7719500-Mountain House Road Widening	124
	7719600-Bethany Road	103
	7719700-Mountain House Rd By-pass	130
	ROAD MAINTENANCE SOUTH	20
	771005320-Mobilization - Gravel Road Maintenance - East	20
	INTERMEDIATE OVERLAYS	72
	771006320-Mobilization - Intrm Overlay - East	15
	771830000-Lower Roberts Island Road - East	20
	771860000-Intakes - SR160 - Both	15
	7718700-Kings Island Access Road - East	5
	7718800-Union Island Access Road	4
	7719000-Byron Hwy Frontage Rd	3
	7719200-Byron Hwy - Lindemann Rd Intersection	4
	7719300-Mountain House Shaft Access Road	5
	7719400-Kelso Road Widening	3
	7719500-Mountain House Road Widening	15
	7719600-Bethany Road	4
	7719700-Mountain House Rd By-pass	2
	FINAL OVERLAYS	125
	771006520-Contractor Site Mgmt & Facilities - Final Ovrly E	125
	771006620-Mobilization - Final Overlay - East	20
	7717700-Canal Ranch Tract - East	2
	771830000-Lower Roberts Island Road - East	10
	7719200-Byron Hwy - Lindemann Rd Intersection	4
	7719300-Mountain House Shaft Access Road	5
	7719400-Kelso Road Widening	3
	7719500-Mountain House Road Widening	15
	7719600-Bethany Road	4
	7719700-Mountain House Rd By-pass	2
	RAIL WORKS	128
	LOWER ROBERTS ISLAND RAIL WORKS	128
	7720030-Mobilization - East	0
	7720200-Ballast/Sub-ballast - East	23
	7720200-Embankment - East	23
	7720200-Excavate Unsuitable - East	10
	7720200-Subdrain System - East	28
	7720200-Track - East	44
	POWER AND UTILITY EARLY WORKS	700
	POWER/ELECTRIC WORKS	700
	601008 - Electrical	700
	UTILITY LOGISTICS	700
	Utility Logistics	700
	CONCRETE SUPPLY	377
	6201 - Erect Batch Plants Lambert Rd	40
	6252 - Erect Batch Plants Bethany Complex	120
	CO.MAJOR CONSTRUCTION	2944
	IN INTAKES	2066
	IN INTAKE 3	1841



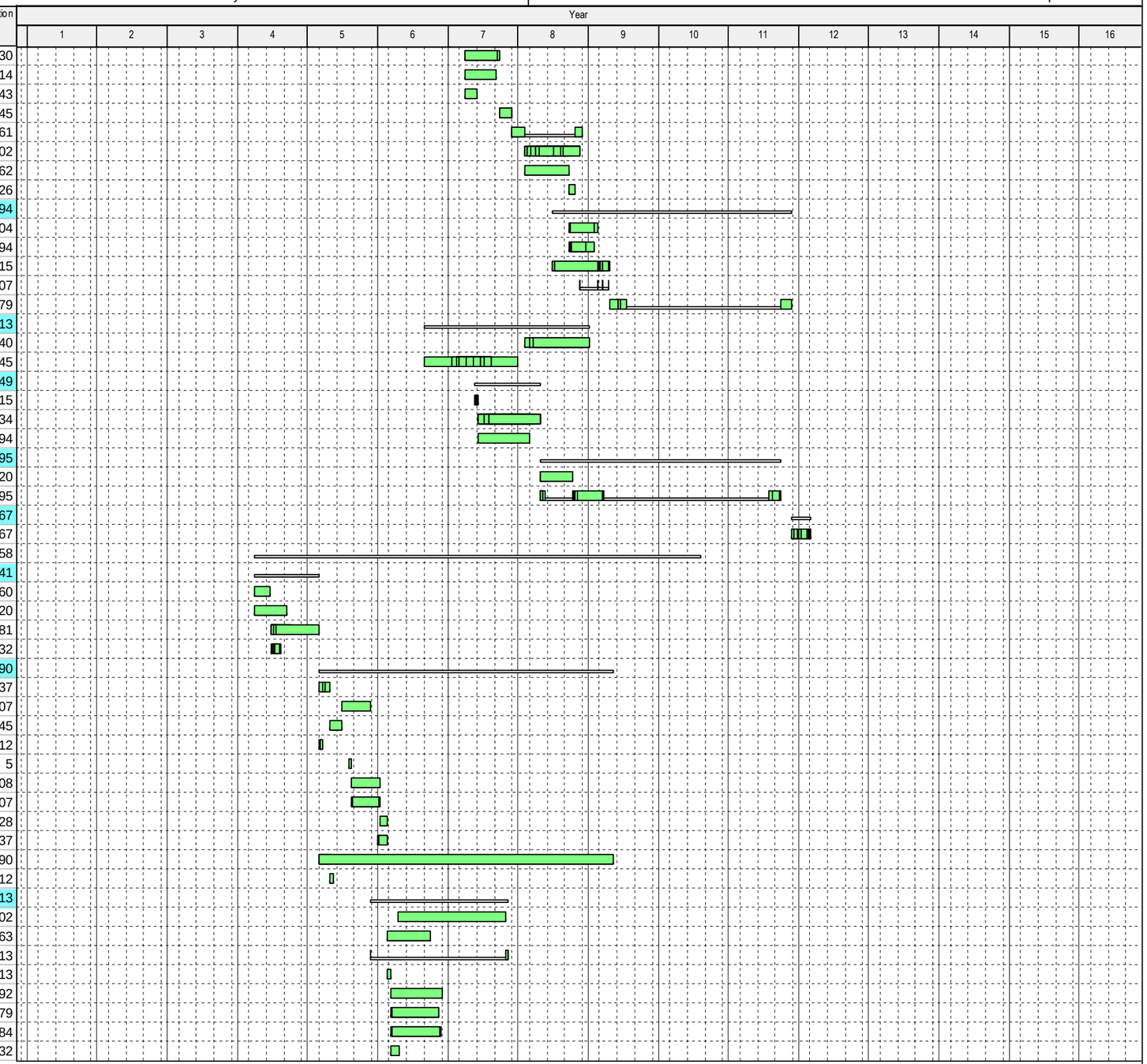
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	Mobilization & Operations	220
113003000	Intake 3 Contractor Mobilization	60
113007010	Construct Temp Buildings & Utilities	220
113007100	Intake 3 Build Site Construction Roads	28
	Phase 1 Sitework	865
113305100	Int 3 Ph1Site Clear & Grub	37
113305210	Int 3 Ph 1 DMM Soil Improvement	107
113305220	Int 3 Ph 1 DMM Cut-off Trench	45
113305230	Int 3 Ph 1 DMM Subcontract Mobe & Demobe	47
113305300	Int 3 Ph 1 Excavate Key Trenches	5
113305410	Int 3 Ph 1 Highway Temporary Fill from Reqd Exc	108
113305430	Int 3 Ph1 Moisture Condition Suitable Soil	113
113305510	Int 3 Ph1 Place Dike Fill from Reqd Excavation	28
113305520	Int 3 Ph 1 Moisture Condition Suitable Soil	32
113305600	Int 3 Ph1 Dewater Excavation W Deep Wells	865
113305800	Int 3 Ph 1 Temporary Plating	12
	Phase 2 Sitework	452
113306210	Int 3 Ph 2 DMM Soil Improvement	402
113306220	Int 3 Ph 2 DMM Cut-off Trench	163
113306230	Int 3 Ph 2 DMM Subcontract Mobe & Demobe	10
113306300	Int 3 Ph 2 Excavate Key Trenches	13
113306510	Int 3 Ph 2 Fills from Required Excavation	192
113306520	Int 3 Ph 2 Fills From Borrow	41
113306530	Int 3 Ph 2 Moisture Condition Suitable Soil	205
113306700	Int 3 Ph 2 Temporary Plating	23
113322300	H Piles in DMM Wall	76
	Roads	470
113305900	Intake 3 Pave Temporary Highway 160	25
113306800	Int 3 Ph 2 Pave New Highway 160 & Dike Roads	38
	Phase 3 Sitework	892
113309120	Int 3 Ph 3 Embankment Fill from Site Excavation	165
113309130	Int 3 Ph 3 Moisture Condition Soil	163
113309140	Int 3 Ph3 Excavate Unsuitable to Spoil	112
113309150	Int 3 Ph3 Final Grade and Invert Rock	191
113309160	Int 3 Ph3 Final Grade and Road Plating	57
113309200	Int 3 Ph 3 Dredge Pipe From Basin To Lagoons	25
113309320	Intake 3 Ph 3 Sed Drying Lagoons Shotcrete Lining	46
113309330	Intake 3 Ph 3 Sed Drying Lagoons Underdrains	23
113309340	Intake 3 Ph 3 Sed Drying Lagoons Roller Compact	41
113309400	Intake 3 Hypalon Curtain	24
113309500	Intake 3 Final Utilities, Paving, Fence, S	82
113309600	Intake 3 Office & Vehicle Storage	57
113309700	Intake 3 Fueling Station	15
113309800	Intake 3 Substation & Elect Distribution	112
113309900	Intake 3 Drop Gate/Stoplog Storage Enclosure	32
	Cofferdams	766
113307100	Intake 3 HZ975D-14/AZ18 Front Combi Wall Coffer	764
113307200	Intake3 Fender System	10
113307300	Intake 3 PZC26 Back Wall Cofferdam	766
113307400	Dredging in front of Cofferdam	13
	Intake Structure	501
113313000	Intake 3 Excavate Inside Intake Coffertam	58
113315100	Mobilize Drill Spread	142



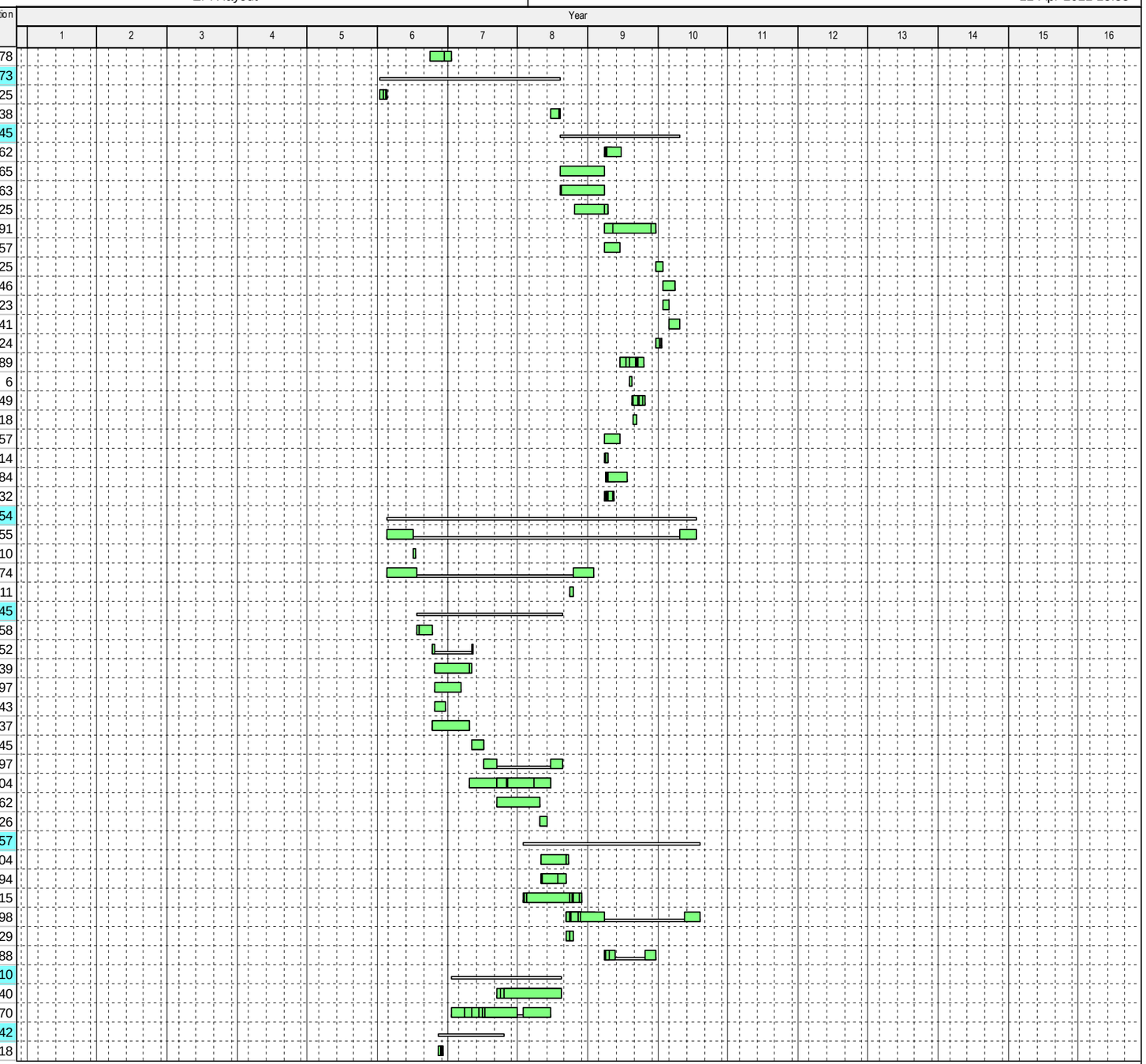
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
113315210	Drill & Case Pier Shafts	130
113315220	Reinforcing Steel	114
113315230	Place Fill Concrete	43
113317000	Intake 3 Tremie Concrete Under Intake Structure	45
113319000	Intake 3 Dewater Intake C'dam & Place Xbra	261
113321100	Intake 3 Place Concrete	202
113321200	Furnish And Place Rebar	162
113321300	Intake 3 Concrete Fill (flowable concrete)	26
Intake MEP		894
113323000	Intake 3 sluice gates and guides	104
113324000	Intake 3 Box Shaft sluice gates and guides	94
113325000	Intake 3 Fish Screens, Panels, & Cleaning	215
113327000	Intake 3 MEP	107
113329000	Intake 3 Finish Out	679
Intake/Basin Pipe Connections		613
113322100	Steel Pipe installation	240
11332250	Sluice Gate Shaft & Outlet	345
Sedimentation Basins		249
113355000	Intake 3 Sediment Basin Drive Piles	15
113357100	Place Concrete	234
113357200	Furnish And Place Rebar	194
Sedimentation Basins MEP		895
113359000	Intake 3 Sediment Basin Radian Gates & Stoplogs	120
113361000	Intake 3 Sediment Basin MEP & Finish Work	895
Site Restoration		67
Intake No. 3 - Site Restoration		67
IN INTAKE 5		1658
Mobilization & Operations		241
115003000	Intake 5 Contractor Mobilization	60
115005060	Intake 5 Personnel Mobe Expense	120
115007010	Construct Temporary Buildings & Utilities	181
115007100	Intake 5 Build Site Construction Roads	32
Phase 1 Sitework		1090
115205100	Int 5 Ph1 Clear and Grub	37
115205210	Int 5 Ph 1 DMM Soil Improvement	107
115205220	Int 5 Ph 1 DMM Cut-off Trench	45
115205230	Int 5 Ph 1 DMM Subcontract Mobe & Demobe	12
115205300	Int 5 Ph 1 Excavate Key Trenches	5
115205410	Int 5 Ph 1 Highway Temporary Fill from Reqd Exc	108
115205430	Int 5 Ph1 Moisture Condition Suitable Soil	107
115205510	Int 5 Ph1 Place Dike Fill from Reqd Excavation	28
115205520	Int 5 Ph 1 Moisture Condition Suitable Soil	37
115205600	Int 5 Ph 1 Dewater Excavation with Deep Wells	1090
115205800	Int 5 Ph 1 Temporary Plating	12
Phase 2 Sitework		513
115206210	Int 5 Ph 2 DMM Soil Improvement	402
115206220	Int 5 Ph 2 DMM Cut-off Trench	163
115206230	Int 5 Ph 2 DMM Subcontract Mobe & Demobe	513
115206300	Int 5 Ph 2 Excavate Key Trenches	13
115206510	Int 5 Ph 2 Fills from Required Excavation	192
115206530	Int 5 Ph 2 Moisture Condition Suitable Soil	179
115206540	Int 5 Ph 2 Place Dike Core Fill from Borrow	184
115206700	Int 5 Ph 2 Place Temporary Gravel Plating	32



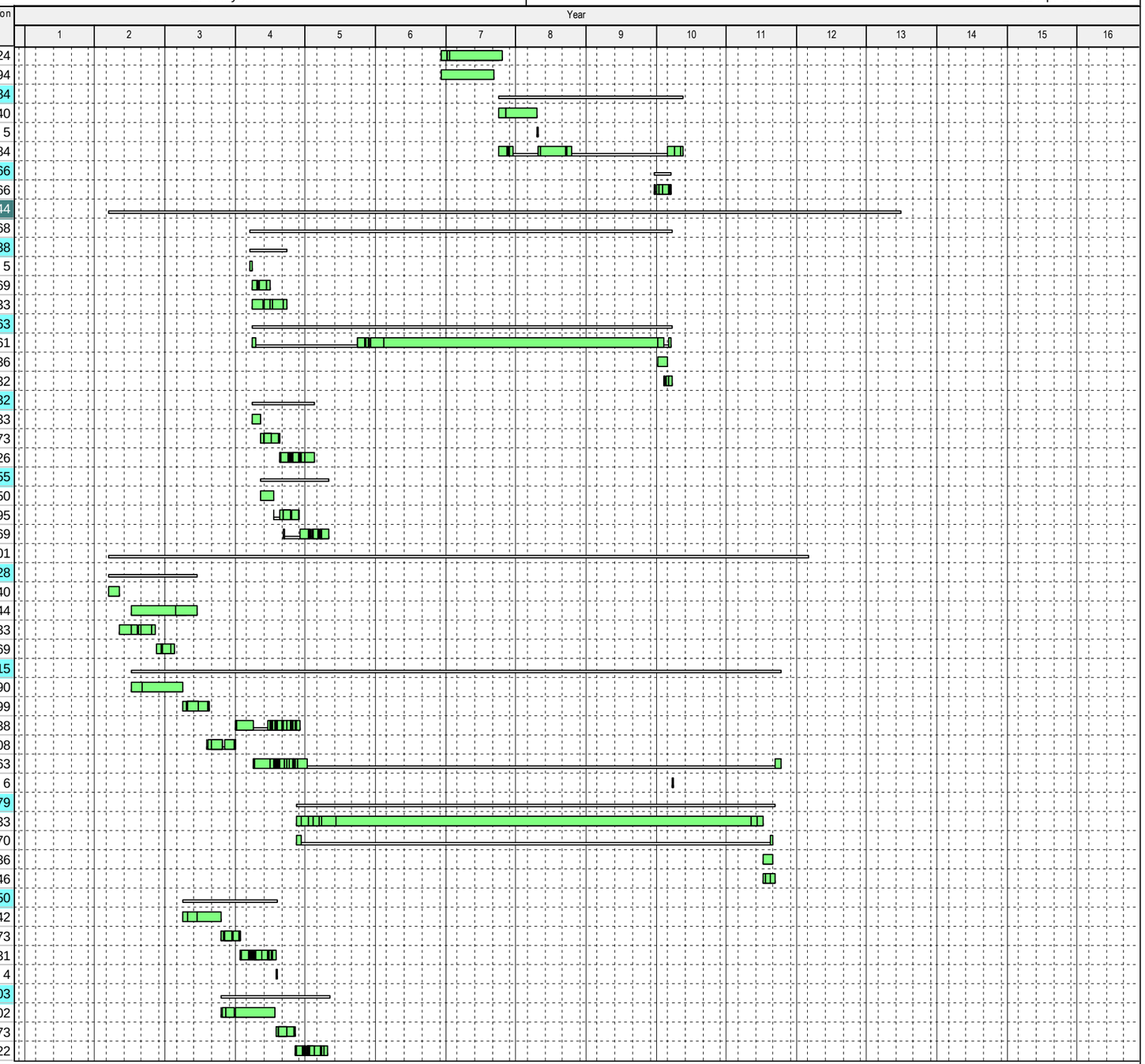
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
115222300	H Piles in DMM Wall	78
Roads		673
115205900	Int 5 Ph 2 Pave Temporary Highway 160	25
115206800	Int 5 Ph 2 Pave New Highway 160 & Dike Roads	38
Phase 3 Sitework		445
113309600	Intake 3 Office & Vehicle Storage	62
115209120	Int 5 Ph 3 Embankment Fill from Site Excavation	165
115209130	Int 5 Ph 3 Moisture Condition Soil	163
115209140	Int 5 Ph3 Excavate Unsuitable to Spoil	125
115209150	Int 5 Ph3 Final Grade and Invert Rock	191
115209160	Int 5 Ph3 Place Area Pllating	57
115209200	Int 5 Ph 3 Dredge Pipe From Basin To Lagoons	25
115209310	Int 5 Ph 3 Sed Drying Lagoons Shotcrete Lining	46
115209320	Int 5 Ph 3 Sed Drying Lagoons Underdrains	23
115209330	Int 5 Ph 3 Sed Drying Lagoons Roller Compact	41
115209400	Int 5 Ph 3 Hypalon Curtain	24
115209500	Int 5 Ph3 Final Utilities, Paving, Fence, S	89
115209610	Place Gravel Foundation Bedding	6
115209620	Place Concrete Slab	49
115209630	Furnish And Place Rebar	18
115209640	Building Construction And Equipment	57
115209700	Fueling Station	14
115209800	Intake 5 Substation & Electrical Distribution	84
115209900	Intake 5 Drop Gate/Stoplog Storage Enclosure	32
Cofferdams		1154
115207100	Intake 5 HZ975D-14/AZ18 Front Combi Wall Coffer	1155
115207200	Intake5 Fender System	10
115207300	Intake 5 PZC26 Back Wall Cofferdam	774
115207400	Dredge in front of Cofferdam	11
Intake Structural		545
115213000	Intake 5 Excavate Inside Intake Coffertam	58
115215100	Mobilize & Demobilize Drill Spread	152
115215210	Drill & Case As Reqd Pier Shafts	139
115215220	Reinforcing Steel	97
115215230	Concrete	43
115215240	Pier Shaft Contractor Profit, G&A, & Conti	137
115217000	Intake 5 Tremie Concrete Under Intake Stru	45
115219000	Intake 5 Dewater Intake C'dam & Place Xbra	297
115221100	Intake 5 Place Concrete	304
115221200	Furnish and Place Rebar	162
115221300	Intake 5 Place Fill Concrete (flowable concrete)	26
Intake MEP		657
115223000	Intake 5 Sluice Gates, Guides & Opera	104
115224500	Intake 5 Box shaft sluice gates and Guides	94
115225000	Intake 5 Fish Screens, Panels, & Cleaning	215
115227100	Intake 5 MEP	498
115227600	Intake 5 Gantry Cranes & Rail	29
115229000	Intake 5 Finish Out	188
Intake/Basin Pipe Connections		410
113322100	Steel Pipe installation	240
11522250	Sluice Gate Shaft & Outlet	370
Sedimentation Basins		242
115255000	Intake 5 Sediment Basin Drive Piles	18



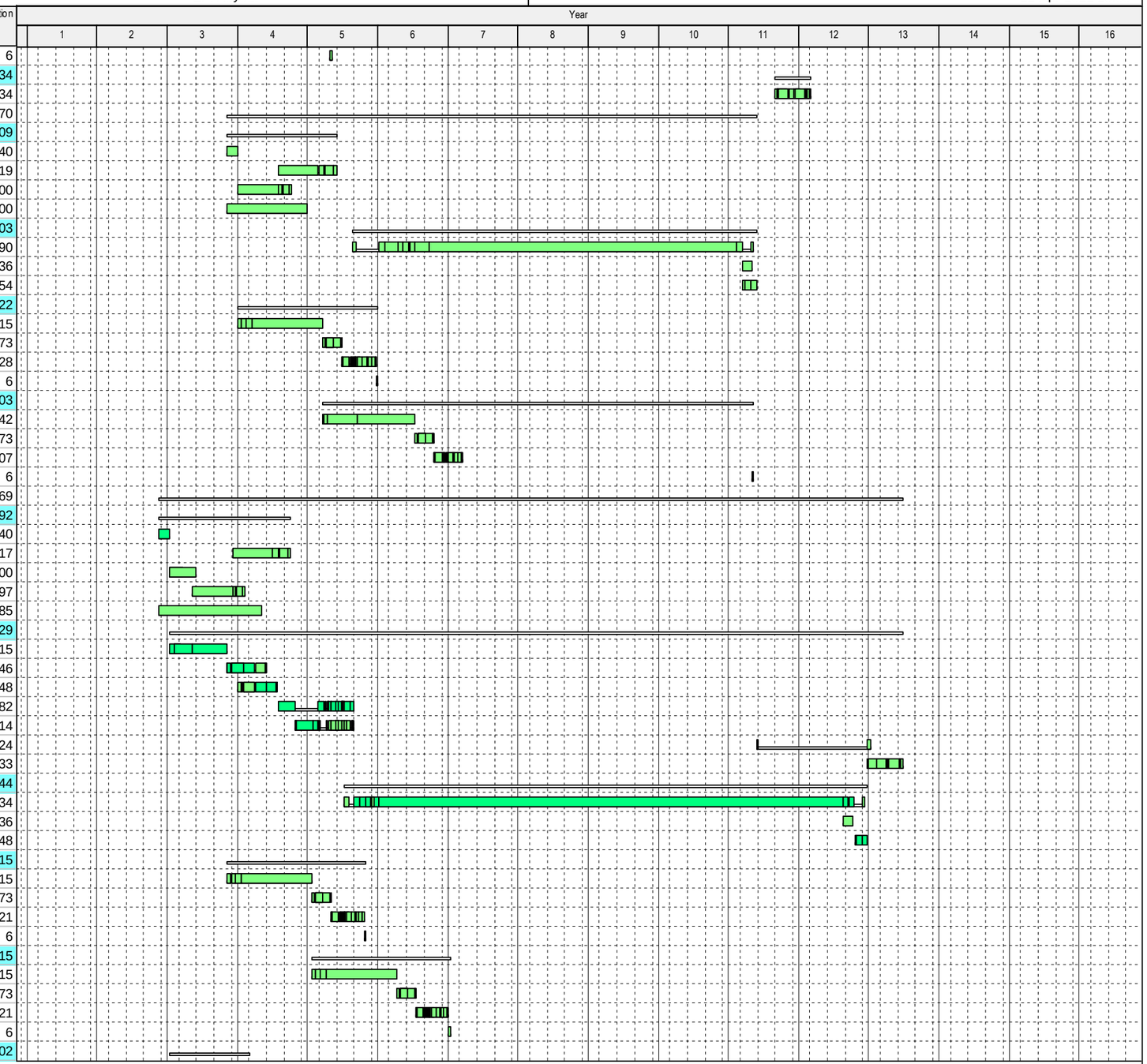
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	115257100 - Place Concrete	224
	115257200 - Furnish And Place Rebar	194
	Sedimentation Basin MEP	684
	115259000 - Intake 5 Sediment Basin Radial Gates & Stoplogs	140
	115261000 - Intake 3 Sediment Basin MEP & Finish Work	5
	115261000 - Intake 5 Sediment Basin MEP & Finish Work	684
	Site Restoration	66
	Intake No. 5 - Site Restoration	66
	TUNNELS AND SHAFTS	2944
	REACH 1	1568
	MOBILIZATION & INDIRECTS	138
	21100425 - Reach 1 Mobilize & Setup Main Construction Site	5
	22200516 - Reach 1 RTM Prep	69
	22200522 - Reach 1 Work site area & segment pad	133
	TUNNEL REACH 1	1563
	21300440 - Reach 1 Tunnel	1561
	21300445 - Reach 1 Remove TBM	36
	21300460 - Reach 1 Remove Tunnel Utilities & Cleanup	32
	INTERMEDIATE SHAFT INTAKE 5 REACH 1	232
	216005 - Reach 1 Work Area for Pass through Shaft - Intake 5	33
	21600530 - Reach 1 D'Wall for Pass through Shaft - Intake 5	73
	21600535 - Reach 1 Excavate/build Pass through Shaft - Intake 5	126
	RECEPTION SHAFT INTAKE 3 REACH 1	255
	214005 - Reach 1 Work Area for Reception Shaft - Intake 3	50
	21400510 - Reach 1 D'Walls for Reception Shaft - Intake 3	95
	21400515 - Reach 1 Excavate/build Reception Shaft - Intake 3	169
	REACH 2	2601
	MOBILIZATION & INDIRECTS	328
	22100515 - Reach 2/1 Mobilize & Setup Site	40
	22200516 - Reach 2/1 Ring Levee and RTM area Borrow	244
	22200522 - Reach 2 Work site area & segment pad	133
	22200523 - Reach 2 RTM Prep	69
	DOUBLE LAUNCH SHAFT REACH 2/1	2415
	222005 - Reach 2/1 Work Area for Launch Shafts	190
	22200519 - Reach 2 D'Walls for Launch shaft	99
	22200520 - Reach 2 Excavate/build Launch Shaft	238
	22200525 - Reach 1 D'Wall for Launch shaft	108
	22200530 - Reach 1 Excavate/build Launch Shaft	1963
	22200531 - Reach 2/1 Launch Shaft Finishing	6
	TUNNEL REACH 2	1779
	22300530 - Reach 2 Tunnel	1733
	22300530 - Reach 2 Tunnel 36 Foot	1770
	22300535 - Reach 2 Remove TBM	36
	22300550 - Reach 2 Remove Tunnel Utilities & Cleanup	46
	MAINTAINANCE SHAFT NEW HOPE TRACT	350
	225006 - Reach 2 Work Area for Maint Shaft - New Hope Tract	142
	22500610 - Reach 2 D'Walls for Maint Shaft - New Hope Tract	73
	22500615 - Reach 2 Excavate/build Maint Shaft - New Hope Tract	131
	22500616 - Reach 2 Maint Shaft Finishing - New Hope Tract	4
	MAINTAINANCE SHAFT CANAL ROAD	403
	226006 - Reach 2 Work Area for Maint Shaft - Canal Road	202
	22600625 - Reach 2 D'Walls for Maint Shaft - Canal Road	73
	22600630 - Reach 2 Excavate/build Maint Shaft - Canal Road	122



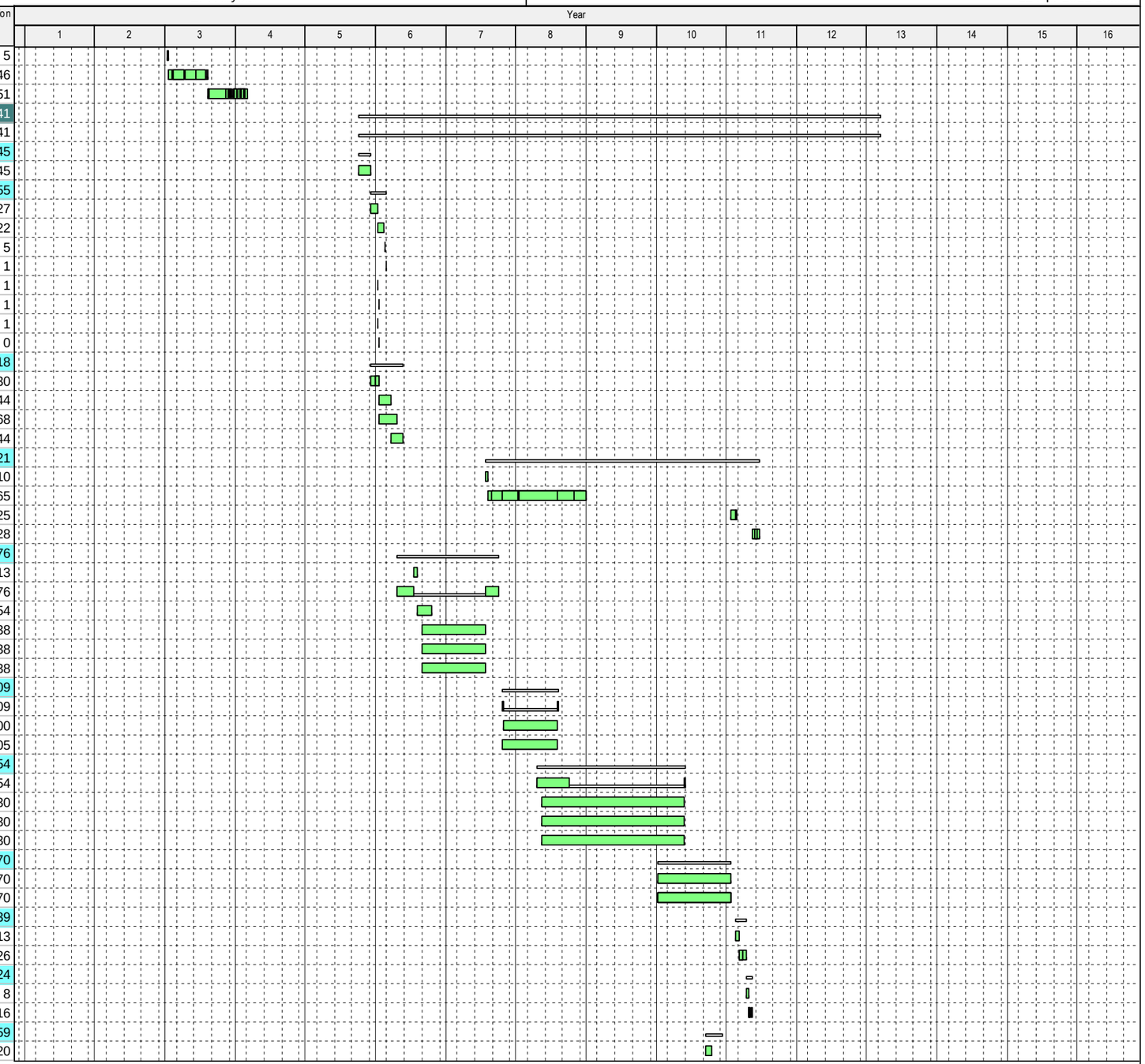
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
22600635	Reach 2 Maint Shaft Finishing - Canal Island	6
	Site Restoration	134
	Glanville Tract - Launch Shaft Site Restoration	134
	REACH 3	1970
	MOBILIZATION & INDIRECTS	409
23100005	Reach 3 Mobilize & Setup Main Site	40
23100006	Reach 3 Work site RTM Area preparation	219
23100006	Reach 3 Work site segment pad	200
23300050	Reach 3 Tunnel Plant & Equipment	300
	TUNNEL REACH 3	1503
23300020	Reach 3 Tunnel	1490
23300025	Reach 3 Remove TBM	36
23300040	Reach 3 Remove Tunnel Utilities & Cleanup	54
	MAINTAINANCE SHAFT KINGS ISLAND	522
234000	Reach 3 Work Area for Maint shaft - Kings island	315
23400096	Reach 3 D'Wall for Maint Shaft - Kings Island	73
23400097	Reach 3 Excavate/build Maint Shaft - Kings Island	128
23400098	Reach 3 Shaft Finishing - Kings Island	6
	RECEPTION SHAFT TERMINUS TRACT	1603
234000	Reach 3(4) Work Area for Reception Shaft - Terminus Track	342
23400014	Reach 3(4) D'Wall for Reception Shaft - Terminus Track	73
23400015	Reach 3 (4) excavate/build reception Shaft - Terminus Track	107
2420016	Reach 3(4) Reception Shaft Finishing - Terminus Track	6
	REACH 4	2769
	MOBILIZATION & INDIRECTS	492
24100115	Reach 4 Mobilize & Setup Site - SF North	40
24100116	Reach 4 RTM site preperation - SF North	217
24100120	Reach 3/4 Work site Levee improvements	100
24200126	Reach 4 Work Area Segment pad - SF North	197
24300155	Reach 4 Tunnel Plant & Equipment	385
	LAUNCH SHAFT SF NORTH	2729
2420001	Reach 3/4 Work Area for Launch Shaft - Lower Roberts	215
2420005	Reach 4 D'walls for Launch Shaft - Lower Roberts	146
2420006	Reach 3 D'Walls for Launch Shaft - Lower Roberts Island	148
2420007	Reach 4 Excavate/build Launch Shaft - Lower Roberts	282
2420008	Reach 3 Excavate/build Launch Shaft - Lower Roberts Island	214
24200120	Reach 3/4 Launch Shaft Finishing	424
	Lower Roberts Island - Launch Shaft Site Restore	133
	TUNNEL REACH 4	1944
24300125	Reach 4 Tunnel	1934
24300130	Reach 4 Remove TBM	36
24300145	Reach 4 Remove Tunnel Utilities & Cleanup	48
	MAINTAINANCE SHAFT UPPER JONES TRACT	515
234000	Reach 3 Work Area for Maint shaft - Upper Jones Tract	315
23400096	Reach 3 D'Wall for Maint Shaft - Upper Jones Tract	73
23400097	Reach 3 Excavate/build Maint Shaft - Upper Jones Tract	121
23400098	Reach 3 Shaft Finishing - Upper Jones Tract	6
	MAINTAINANCE SHAFT UNION ISLAND	515
234000	Reach 3 Work Area for Maint shaft - Union Island	315
23400096	Reach 3 D'Wall for Maint Shaft - Union Island	73
23400097	Reach 3 Excavate/build Maint Shaft - Union Island	121
23400098	Reach 3 Shaft Finishing - Union Island	6
	RECEPTION SHAFT BETHANY COMPLEX	302



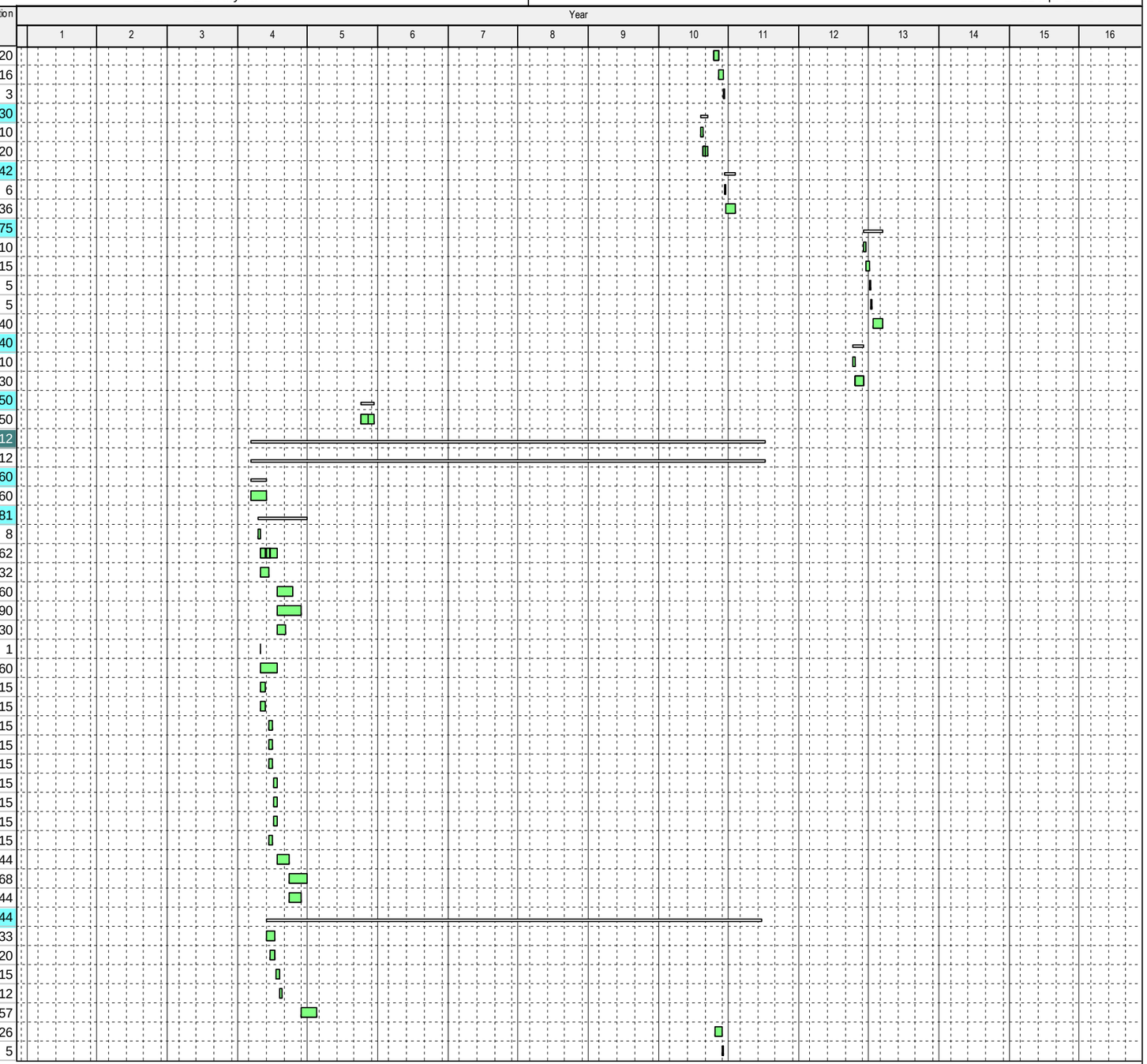
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
242001	Reach 4 Work Area for Reception Shaft	5
24200187	Reach 4 D'Wall for Reception Shaft	146
24200189	Reach 4 Excavate/build Reception shaft	151
SURGE BASIN		1941
South Surge Basin		1941
Mobilization & Overhead		45
331003000	Surge Basin Equipment Mobilization	45
Temporary Facilities		55
331007110	SB Contractor's Office	27
331007120	SB Shops & Warehouse (No Rebar Shop)	22
331007130	SB Other Structures	5
331007210	SB Site Roads & Site Work	1
331007310	SB Electrical Supply & Distribution	1
331007330	SB Telephone Installation	1
331007340	SB Water Supply & Distribution	1
331007350	SB Sewer Collection & Treatment	0
Rebar Shop		118
331015110	RS Base Slabs	30
331015200	Rebar Shop Pre-Engineered Building	44
331015310	RS Furnish & Install Overhead Cranes	68
331015400	Rebar Shop Miscellaneous Equipment	44
Earthworks		1021
332005000	Surge Basin Clear & Grub/Demolition	10
332010000	Surge Basin E xcavation & Demo'n	365
332015000	Surge Basin Ramp Construction	25
334050000	Surge Basin Finish Out	28
Diaphram Walls		376
333010100	Level Land & Prepare for Diaphragm Wall Cont.	13
333010200	Slurry Wall Mobe and Demobe	376
333010310	Set Guide Walls	54
333010320	Excavate (Hydromill) Slurry Trench	238
333010330	Reinforcing Steel	238
333010340	Concrete	238
Tie Backs		209
333020010	Mobilize Tieback Spread	209
333020030	Install Tiebacks	200
333020060	Tieback Contractor Profit, G&A, & Conti	205
Drilled Piers		554
333030020	Mobilize Drill Spread	554
333030040	Drill 72"' Pier Shafts	530
333030050	Reinforcing Steel	530
333030060	Place Fill Concrete	530
Invert Slab		270
334010110	SB IS Ground Preparation	270
334010130	SB IS Concrete	270
Ramp Slab		39
334010210	SB RS Ground Preparation	13
334010230	SB RS Concrete	26
Laydown Slab		24
334010310	SB LS Ground Preparation	8
334010330	SB LS Concrete	16
Overflow Weir		59
334020110	SB OW Surface Preparation	20



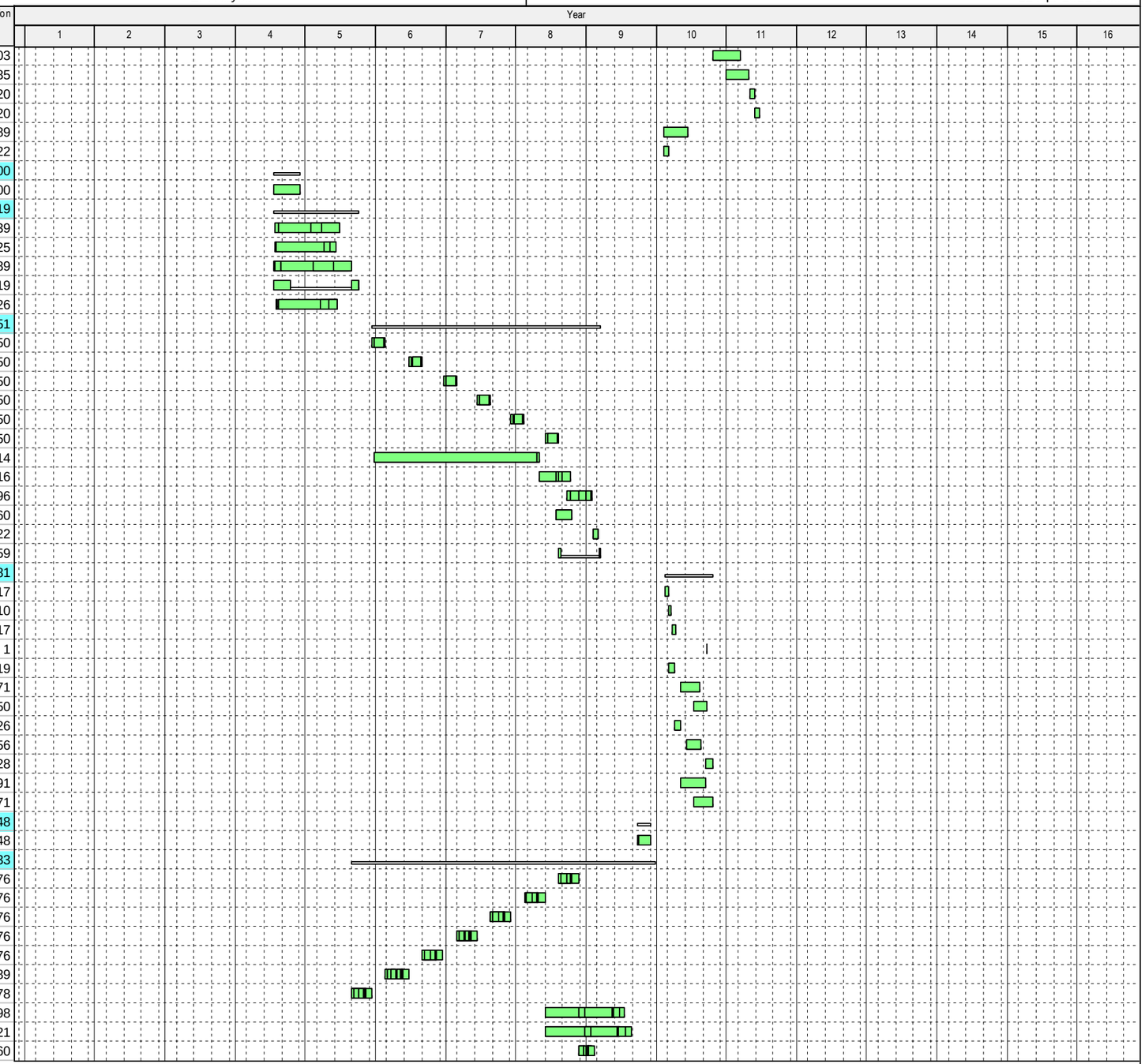
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
334020130	SB OW Concrete	20
334020410	SB Procure OW Sluice Gates	16
334020420	SB OW Sluice Gates Installation	3
	Reception Shaft Collar	30
334020210	SB RSC Surface Preparation	10
334020230	SB RSC Concrete	20
	Gate Shaft Conduit Closure	42
334020310	SB GS Procure Stoplogs & SS Guides	6
334020320	SB GS Install Stoplog Guides	36
	Gantry Crane Bridge	75
334030110	SB GCB Structural Steel Procure & Deliver	10
334030120	SB GCB Structural Steel Erection	15
334030310	SB GCB Crane Rails	5
334030320	SB GCB Railings	5
334030400	Surge Basin Gantry Crane	40
	Gantry Crane Bridge Slab	40
334030210	SB GCBS Stay-in-Place Forms	10
334030230	SB GCBS Concrete	30
	Dewatering System	50
334040000	Dewatering System	50
	PP PUMPING PLANT	1912
	PUMPING PLANTS	1912
	Mobilization & Overhead	60
441003000	Mobilize Pump Plant Contractor	60
	Temporary Facilities	181
441009010	Place Foundation Gavel Bedding	8
441009020	Place Foundation Concrete	62
441009030	Furnish And Place Rebar	32
441009040	Contractors Office	60
441009050	Shops & Warehouse	90
441009060	Other Structures	30
441009070	Site Roads & Parking	1
441009080	Site Utilities	60
441009090	Temporary Water & Sewer Treatment Plants	15
441017520	RS Base Slabs Ground Preparation	15
441017540	RS Base Slabs Concrete Placing	15
441017550	RS Base Slabs Concrete Finishing	15
441017560	RS Base Slabs Formwork	15
441017570	RS Base Slabs Point & Patch	15
441017580	RS Base Slabs Cure & Cleanup	15
441017590	RS Base Slabs Treat CJ	15
441017600	RS Base Slabs Reinforcing Steel	15
441017610	Rebar Shop Pre-Engineered Building	44
441017630	RS Furnish & Install Overhead Cranes	68
441017640	Rebar Shop Miscellaneous Equipment	44
	Site Work	1844
442005010	Clear and Grub Pump Station Area	33
442005030	Site Grading to Elev 41	20
442005040	Gravel Plating	15
442005110	Aggregate Base Plating under Roads/Parking Areas	12
442005120	Storm Drains & Culverts	57
442005130	Curbs, Gutters, And Sidewalks	26
442005140	Pave Roads & Parking Lots	5



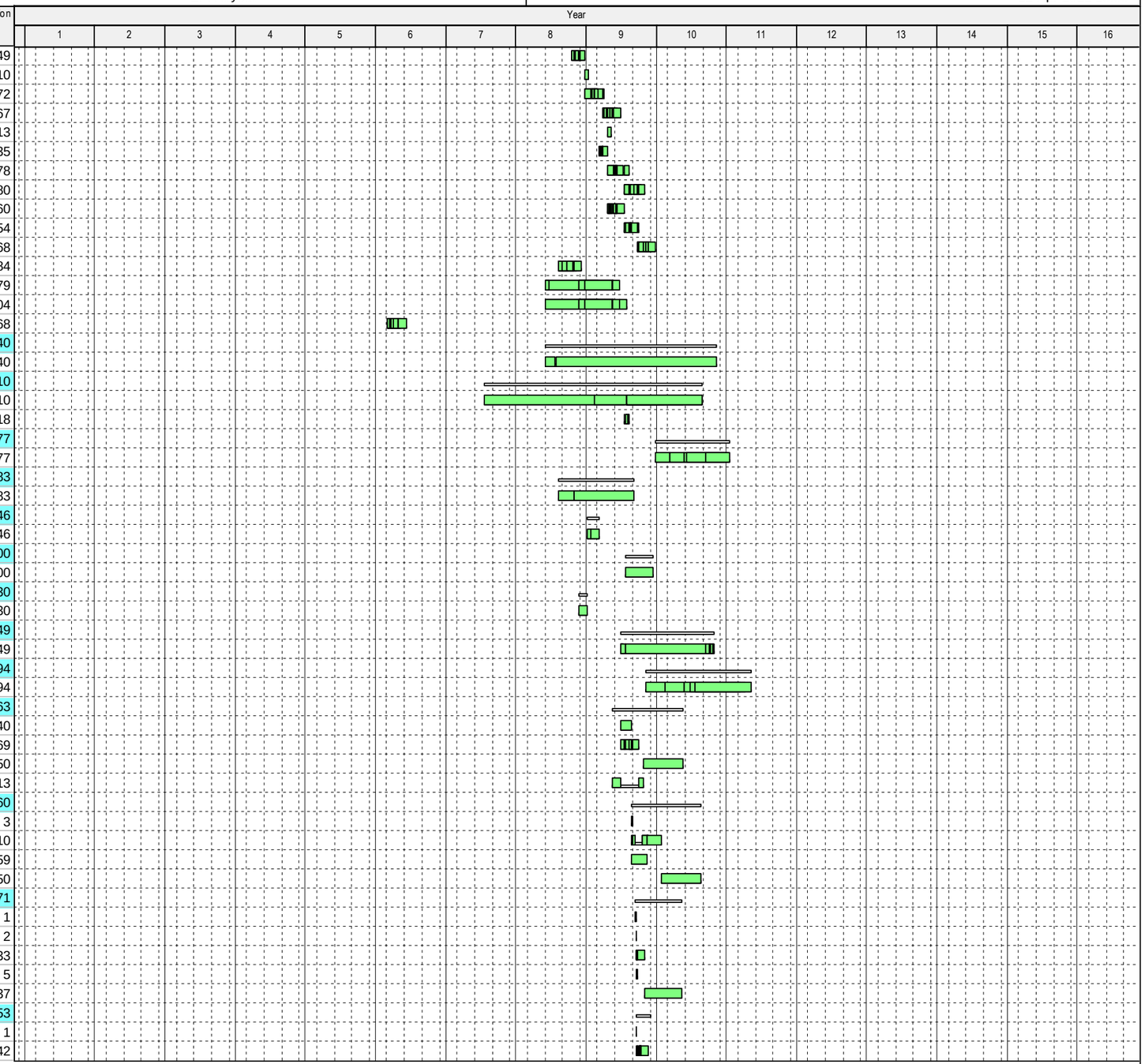
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	442005150 - Underground Utilities	103
	442005160 - Landscaping	85
	442005170 - Area Lighting	20
	442005180 - Added Security Fencing & Gates	20
	443150010 - Site Electrical Work	89
	443160010 - SCADA Electrical Work	22
	Water Control	100
	442005020 - Deep Wells	100
	Diaphram Wall Construction	319
	442015 - Diaphram Walls Below Foundation Slab	239
	442015 - Diaphram Walls Full Height	225
	442015 - Exterior Walls	289
	442015 - Mobilization & Overhead	319
	442015 - Wet Well Perimeter Diaphram Walls	226
	Excavation	851
	442020 - Excavate Level El. 42 to -2	50
	442021 - Excavate Level El. -2 to -27	50
	442022 - Excavate Level El. -27 to -52	50
	442023 - Excavate Level El. -52 to -77	50
	442025 - Excavate Level El. -77 to -88.25	50
	442026 - Excavate Level El. -88.25 to -110.5	50
	442030 - Excavate Wet Well	614
	442035 - Excavate Mechanical Room	116
	442036 - Excavate Surge Tank Vault	96
	442045 - Drilled Piers for Mechanical Room	60
	442045 - Drilled Piers for Vault	22
	442045 - Mobilization & Overhead	159
	15' Dia Bethany Reservoir Pipe to Y	181
	4420510 - Mass Exc. for 16' Pipe, Ramp to 'Y'	17
	4420520 - Furnish and Plance Bedding	10
	4420520 - Place Cradles on Bedding	17
	4420530 - Cathodic Protection	1
	4420530 - Furnish Materials to Site, Unload and Store	19
	4420530 - Line-up and Stringer Bead	71
	4420530 - Mortor Line Pipe	50
	4420530 - String Pipe	26
	4420530 - Weld Pipe	56
	4420540 - Cure and Cleanup	28
	4420540 - Furnish and Place Flowable Concrete	91
	4420550 - Place Backfill from Stockpile	71
	Remove Section of Diphram Walls - WW Pipe, Elec, Conduit	48
	442075 - Remove Section of Diphram Walls - WW Pipe, Elec, Conduit	48
	Concrete Decks & Walls	1133
	443010 - Foundation Slab @ El. -100.50	76
	443011 - Intermediate Slab @ El. -86.25	76
	443012 - Intermediate Pump Motor Slab @ El. -72.00	76
	443013 - Intermediate Deck @ El. -47.00	76
	443014 - Intermediate Deck @ El. -22.00	76
	443015 - Operating Deck @ El. 3.00	89
	443016 - Top Deck @ El. 47.00	78
	443020 - Pump Plant Vertical Concrete Wall Liners	298
	443021 - Interior Concrete Walls	321
	443022 - Concrete Fill Around Pump Inlets	60



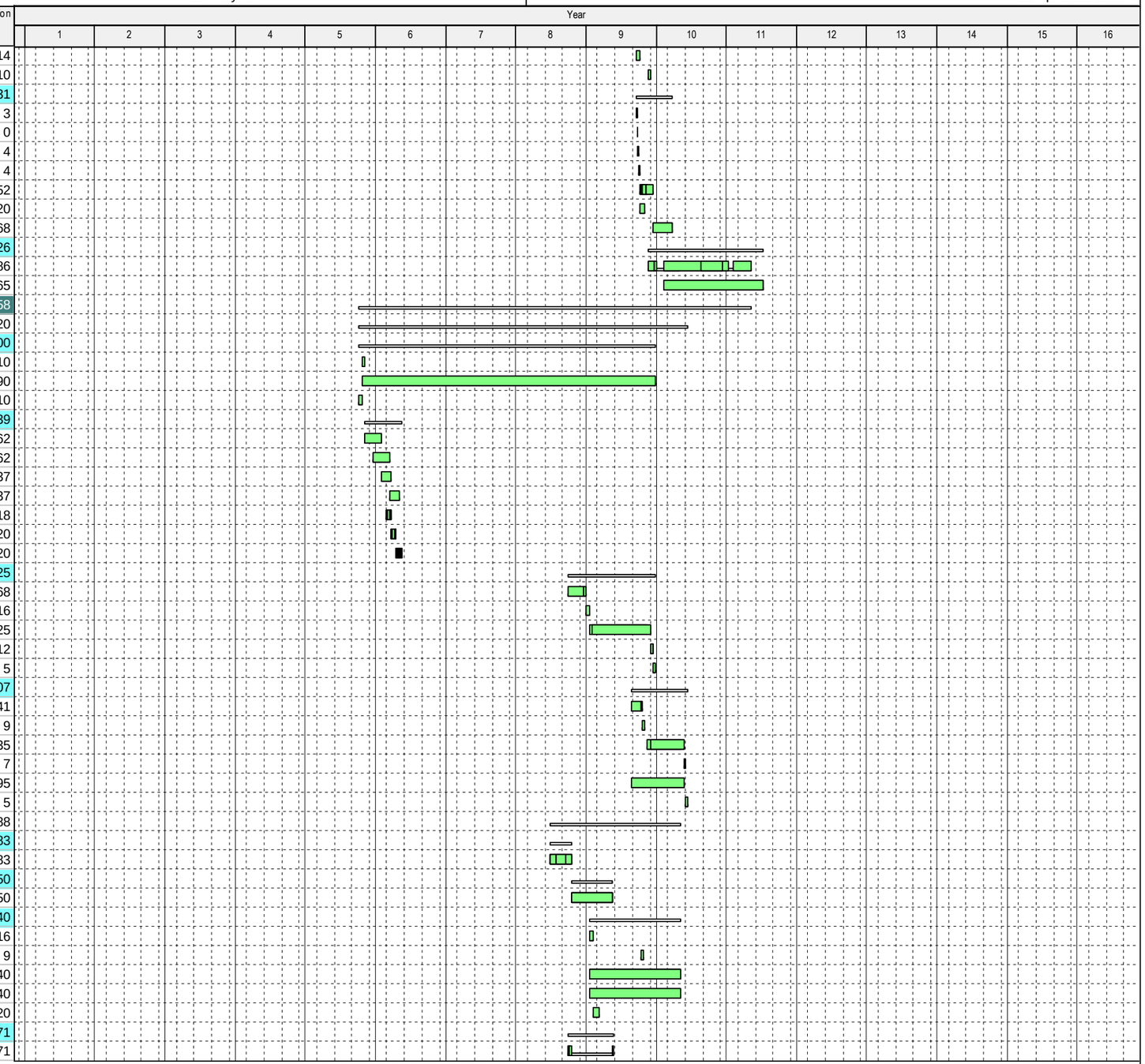
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	443023 - Mechanical Room Concrete Invert Slab	49
	443023 - Mechanical Room Concrete Walls	10
	443024 - Mechanical Room Concrete Walls	72
	443025 - Mechanical Room Roof Slab	67
	443030 - Surge Tank Valve Vault Concrete Walls	13
	443030 - Surge Tank Valve Vault Invert Slab	35
	443031 - Surge Tank Valve Vault Concrete Walls	78
	443032 - Surge Tank Valve Vault Concrete Roof	80
	443035 - Surge Tank Invert Slab	60
	443036 - Surge Tank Concrete Walls	54
	443037 - Surge Tank Concrete Roof Slab	68
	443040 - Wet Well Concrete Invert Slab	84
	443041 - Wet Well Intermediate Slabs	279
	443042 - Wet Well Concrete Walls / Braces	304
	443043 - Wet Well Concrete Roof Slab	68
	Miscellaneous Metals	640
	443044000 - Pump Plant Miscellaneous Metals	640
	500 cfs Pumps & Motors	810
	443045000 - 500 CFS Pumps & Motors (14 ea)	810
	443057000 - Wet Well Dewatering Pumps	18
	108" Steel Pipe to 15' RW Connection	277
	443047000 - 108" Dia. Steel Pipe, Valves, to 15' Dia. RW Conn.	277
	Bulkheads	283
	443049010 - Bulkheads	283
	Gantry Cranes	46
	443050000 - Pump Plant Overhead Gantry Cranes	46
	Elevators	100
	443052000 - Service Elevators	100
	Pump Plant Structural Canopies	30
	443055000 - Pump Plant Structural Canopies (2 ea)	30
	HVAC Systems	349
	443060000 - HVAC Mechanical Systems	349
	Valve Vault Piping &/ Valves	394
	443065000 - Valve Vault Piping & Valves	394
	Pump Plant MCC/ Electrical Bldg.	263
	443090010 - Furnish And Place Rebar	40
	443090020 - Foundation Slab	69
	443090030 - Building Construction And Equipment	150
	443090100 - Excavation and Backfill	113
	Equipment Storage Bldg	260
	443095010 - Place Foundation Gavel Bedding	3
	443095020 - Place Foundation Slab Concrete	110
	443095030 - Furnish And Place Rebar	59
	443095040 - Building Construction And Equipment	150
	Storage Area & Yards	171
	443100020 - Place Gavel Bedding	1
	443105010 - Place Foundation Gravel Bedding	2
	443105020 - Place Foundation Concrete	33
	443105030 - Furnish And Place Rebar	5
	443105040 - Building Construction And Equipment	137
	Generator Bldg.	53
	443106010 - Place Foundation Gravel Bedding	1
	443106020 - Place Foundation Concrete	42



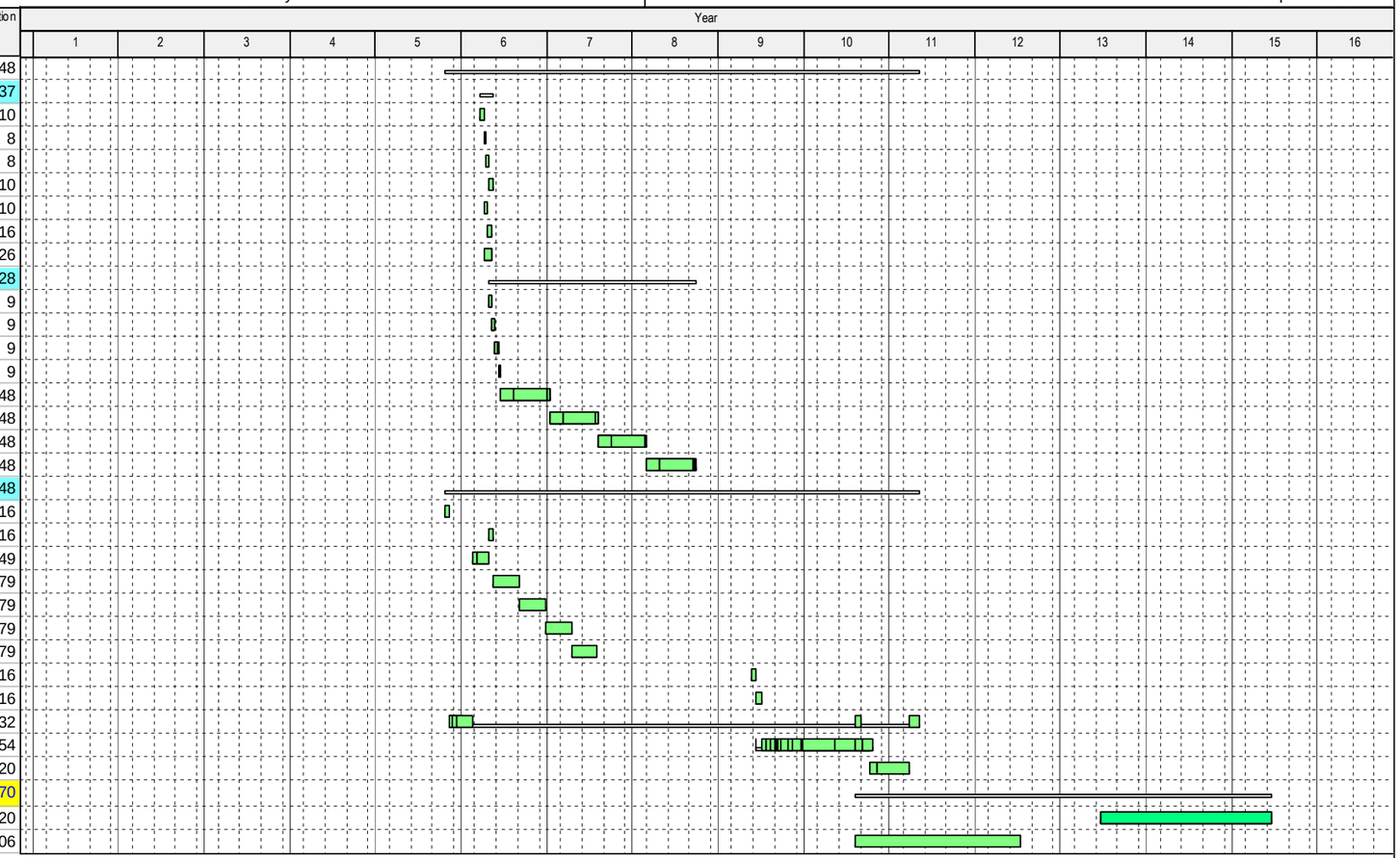
TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	443106030 - Furnish And Place Rebar	14
	443106040 - HVAC Yard Equipment Install	10
	Substation & Elec. Distribution	131
	443110010 - Excavate/Grade Foundation Slab	3
	443110020 - Provide Foundation Piles (50 LF)	0
	443110030 - Drive Foundation Piles	4
	443110040 - Place Gavel Bedding	4
	443110050 - Place Concrete	52
	443110060 - Furnish And Place Rebar	20
	443120010 - Substation Electrical Work	68
	Electrical	426
	443130010 - Pump Plant Buildings Electrical Work	386
	443140010 - Pump Plant Electrical Work	365
	BETHANY AQUEDUCT	1458
	CUT AND COVER PIPELINE	1220
	MOBILIZATION AND FACILITIES	1100
	812005 - Mobilization - Section 1	10
	812065 - Indirect Cost - Section 1	1090
	813005 - Mobilization - Section 2	10
	SITE PREP AND ACCESS	139
	812010 - Clear and Grub - Section 1	62
	812015 - Strip and Stock Pile Topsoil - Section 1	62
	813010 - Clear and Grub - Section 2	37
	813015 - Strip and Stock Pile Topsoil - Section 2	37
	813046 - Bridges at Jones Penstocks	18
	813047 - Bridges at BBID	20
	813048 - Bridges atGas Line Crossing	20
	SECTION 1 - PUMP PLANT TO JONES CROSSING	325
	812020 - Trench Excavation - Section 1	68
	812025 - Place Trench Stabilization Material - Section 1	16
	812035 - Backfill - Section 1	225
	812040 - Compact and Finish - Section 1	12
	812055 - Site Restoration and Demobilization - Section 1	5
	SECTION 2 - JONES CROSSING TO BETHANY TUNNEL	207
	813020 - Trench Excavation - Section 2	41
	813025 - Place Trench Stabilization Material - Section 2	9
	813035 - Backfill - Section 2	135
	813040 - Compact and Finish - Section 2	7
	813045 - Dewatering - Section 2	195
	813055 - Site Restoration and Demobilization - Section 2	5
	PIPE INSTALLATION	488
	INSTALL PIPES - JONES CROSSING	83
	815050 - Installation of Pipes at Crossing	83
	INSTALL PIPES - BETHANY TUNNELS	150
	815055 - Installation of Pipes at Tunnels and Shafts	150
	INSTALL PIPES - CUT AND COVER	340
	812030 - Furnish Concrete Cradles - Section 1	16
	813030 - Furnish Concrete Cradles - Section 2	9
	815020 - Installation of Pipes at Open Cut	340
	815040 - Internal Mortar Lining	340
	815045 - Cathodic Protection	20
	INSTALL PIPES - BETHANY SHAFTS	171
	815055 - Installation of Pipes at Tunnels and Shafts	171



TASK filter: summary schedule.

Activity ID	Activity Name	Original Duration
	AQUEDUCT TUNNELS AND SHAFTS	1448
	TUNNEL PORTALS	37
	851010 - Mobilize Portals	10
	851020 - Excavate East Portal	8
	851025 - Excavate West Portal	8
	851030 - Excavate Single Portal	10
	851031 - Portal Cut Support	10
	851032 - Site Setup Portals	16
	851040 - Indirect Cost	26
	AQUEDUCT TUNNELS	628
	852020 - Excavate Short Tunnel 1	9
	852025 - Excavate Short Tunnel 2	9
	852030 - Excavate Short Tunnel 3	9
	852035 - Excavate short Tunnel 4	9
	852040 - Excavate Long Tunnel 1	148
	852045 - Excavate Long Tunnel 2	148
	852050 - Excavate Long Tunnel 3	148
	852055 - Excavate Long Tunnel 4	148
	OUTLET SHAFT AND STRUCUTURE	1448
	852010 - Mobilize Shaft site	16
	852015 - Site Setup Tunnels & Shafts	16
	852060 - Excavate for Outlet structure	49
	852060 - Excavate Shaft 1	79
	852065 - Excavate Shaft 2	79
	852070 - Excavate Shaft 3	79
	852075 - Excavate Shaft 4	79
	853010 - Mobilize Reservoir Structure	16
	853015 - Site Setup Reservoir Structure	16
	853020 - Build Reservoir Cofferdam	1432
	853020 - Build Reservoir Structure	354
	853024 - Discharge MEP	120
	CM COMMUNICATION & CONTROL / COMMISSIONING	1270
	Commissioning	520
	Communicatrion & Control	506



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