

# DESIGN FEE BOOK

*Project Cost Estimate Documentation*

**\$63,000,000**

TOTAL DESIGN FEE

**10**

DISCIPLINES

**13**

DURATION  
(MONTHS)

**30**

WBS  
ELEMENTS

## CHAPTER 1

# Executive Summary

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**\$63,000,000**

TOTAL DESIGN FEE

**10**

DISCIPLINES

**1**

PHASES

**3**

PACKAGES

**30**

WBS ELEMENTS

### Project Scope

Design-build replacement of Port Newark Marine Terminal Berths 10 and 12 wharf structures including deconstruction/removal of existing wharf infrastructure and construction of new wharf deck supported on deep foundations (driven steel pipe piles, combi wall waterside bulkhead, anchored rear bulkhead, tieback anchors, possible rock sockets), plus fender and mooring systems (bollards), temporary mooring bollards (3), civil upland/berth deck grading and pavements, stormwater drainage collection/treatment and reconstructed tidal outfalls with backflow prevention sized to >=60-in RCP capacity, exterior sanitary and water distribution (domestic/fire) with hydrants/valves/ship service, electrical power distribution replacement and new ductbanks/manholes, high-mast lighting replacement/relocation, guard booth replacement (prefab 8'x6' with pad, HVAC, power, CCTV, lighting), heat tracing for piping, resilience requirements (SLR/DFE, future deck raising to +11.0 and future seawall to +14.2), extensive surveys/inspections (storm pipe CCTV, utility tracing), monitoring (vibration/settlement), and full testing/commissioning with O&M training. Dredging to 47 ft depth is noted but to be performed under separate contract.

## Cost Estimate Basis

Construction Cost:	\$420,000,000
Design Fee Percentage:	15%
Total Design Fee:	\$63,000,000
Project Type:	Highway/Roadway

## Project Structure

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Project Phases	Deliverable Packages
1. Base	<ul style="list-style-type: none"><li>1. Intermediate Design Submittal</li><li>2. Final Design Submittal</li><li>3. Released for Construction (RFC) Submittal</li></ul>

## CHAPTER 2

# Cost Estimate Details

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### Discipline Budget Allocation

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DISCIPLINE	COMPLEXITY	INDUSTRY %	ACTUAL %	BUDGET
Drainage	High	12%	17.1%	\$10,800,000
Environmental	Medium	5%	7.1%	\$4,500,000
Traffic	High	12%	17.1%	\$10,800,000
Geotechnical	Medium	6%	8.6%	\$5,400,000
Utilities	High	10%	14.3%	\$9,000,000
Roadway	Medium	5%	7.1%	\$4,500,000
MOT	Medium	5%	7.1%	\$4,500,000
Bridge Structures	Medium	5%	7.1%	\$4,500,000
Misc Structures	Medium	5%	7.1%	\$4,500,000
Digital Delivery	Medium	5%	7.1%	\$4,500,000
<b>Total Design Fee</b>				<b>\$63,000,000</b>

## CHAPTER 3

# Man-Hour Benchmark Analysis

<b>96,554</b> TOTAL MAN-HOURS	<b>\$14,483,100</b> EST. BUDGET @ \$150/HR	<b>14</b> DISCIPLINES	<b>High</b> COMPLEXITY
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## Discipline Man-Hour Breakdown

DISCIPLINE	QUANTITY	RATE (MH/UNIT)	MAN-HOURS	BUDGET
Roadway	3,000	0.77	2,305	\$345,750
Drainage	10.3	309.10	3,184	\$477,600
MOT	3,000	0.54	1,628	\$244,200
Traffic	3,000	0.28	847	\$127,050
Utilities	12	256.52	3,078	\$461,700
Structures	24,000	0.06	1,524	\$228,600
Bridges	126,000	0.11	13,322	\$1,998,300
Bridges	36,000	0.38	13,522	\$2,028,300
Bridges	18,000	0.16	2,815	\$422,250
Geotechnical	6	533.09	3,199	\$479,850
Environmental	6	350.00	2,100	\$315,000
Digital Delivery	420,000	0.02	8,304	\$1,245,600
ESDC	420,000	0.01	29,579	\$4,436,850
TSCD	420,000	0.01	11,147	\$1,672,050
<b>Total</b>			<b>96,554</b>	<b>\$14,483,100</b>

**Note:** Man-hour estimates based on historical benchmark data. Budget calculated using \$150/hour blended rate.

## CHAPTER 4

# Discipline Details

### Drainage

**\$10,800,000 (17.1%)**

Design and construct complete stormwater drainage system for entire project site; preserve upstream drainage patterns; collect/treat/discharge all deck runoff through reconstructed outfalls; hydraulic model and spread analysis (10-yr event; also year-2100 10-yr per resilience); max 4-inch ponding depth; HGL criteria (1 ft below grate); inspect/clean CCTV-inspect all existing storm pipes >=12 in and structures; remove all existing stormwater structures/pipes supported by deck; provide condition assessment and pipe inspection summary report; design CB/manhole layout (up to 3 CBs in series; manholes at grade/alignment/size changes; spacing per Table 7-2); provide outfalls with backflow prevention and net capacity >= 60-in RCP; provide scour/erosion protection; temporary bypass pumping system for existing storm flows during construction; provide backwater valves per plumbing requirements.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$2,700,000	2026-01-24	2026-05-15
Final Design Submittal	50%	\$5,400,000	2026-05-16	2026-09-25
Released for Construction (RFC) Submittal	25%	\$2,700,000	2026-09-26	2027-01-08

### Environmental

**\$4,500,000 (7.1%)**

Stormwater quality compliance with NJDEP N.J.A.C. 7:8 (80% TSS reduction) using non-structural and manufactured treatment devices (exclude porous pavement and bioremediation swales); erosion/scour protection at outfalls; manage C&D waste and sustainability submittals (MRAF, WMP, EPDs, etc.); coordinate any regulatory approvals for stormwater/outfalls and utility work.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-10	2026-04-24
Final Design Submittal	50%	\$2,250,000	2026-04-25	2026-09-04
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-09-05	2027-01-08

<b>Traffic</b>	<b>\$10,800,000 (17.1%)</b>
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Prepare Construction Phase Transportation Management Plan (CP-TMP) with haul routes, staging, sequencing; perform Temporary Traffic Analysis Report for each construction phase and LOS analysis (no worse than LOS D); design temporary and permanent roadway geometry for WB-67; identify non-standard features and provide report; design signing plans (including access route to Berth 8) and pavement markings; evaluate need for roadside barriers/attenuators per AASHTO/PA guides; ensure pull-in/pull-out maneuvers for staging areas.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$2,700,000	2026-01-17	2026-05-08
Final Design Submittal	50%	\$5,400,000	2026-05-09	2026-09-18
Released for Construction (RFC) Submittal	25%	\$2,700,000	2026-09-19	2027-01-08

<b>Geotechnical</b>	<b>\$5,400,000 (8.6%)</b>
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Perform additional borings and CPTs; prepare Geotechnical Planning Report; Geotechnical Data Report; Geotechnical Engineering and Foundation Design Report; site-specific seismic and liquefaction analyses; design combi wall waterside bulkhead, anchored rear bulkhead, permanent tieback anchors, driven steel pipe piles (with/without rock sockets), and underdeck stone/geotextile/filter layers; develop field load testing program (min 2 axial + 2 lateral per pile type/diameter/capacity; dynamic testing min 2% of production piles); vibration/settlement monitoring plan; instrumentation/monitoring for structures/utilities within 100 ft; pre- and post-construction condition surveys; utility potholing/hand excavation within 25 ft of piles and expose 4-ft segments within 12 ft of pile locations; pre-augering near utilities/foundations.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,350,000	2026-01-10	2026-04-10
Final Design Submittal	50%	\$2,700,000	2026-04-11	2026-08-14
Released for Construction (RFC) Submittal	25%	\$1,350,000	2026-08-15	2027-01-08

<b>Utilities</b>	<b>\$9,000,000 (14.3%)</b>
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Design/relocate/abandon utilities within project site: exterior sanitary sewer, exterior water distribution (domestic + fire), storm drainage, electrical/communications ductbanks and conduits; coordinate with utility riser on Marsh St and utility meter; protect/reuse existing ductbanks from riser to last manhole before meter; remove/replace manholes/ductbanks/conductors after meter as required; provide temporary power as needed; abandon utilities/structures with plugs and flowable fill; provide new low-pressure water distribution with looped feeds (2 directions), valves spacing, restrained joints; maintain/relocate/add fire hydrants and develop Fire Hydrant Plan and Hydrant Location Drawings; provide ship service box; provide backflow preventer device(s); provide heat tracing and insulation for water/storm piping in freeze areas; provide underground pipe supports/hangers; coordinate CCTV/security power and communications ductbanks (electronics via addendum).

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$2,250,000	2026-01-24	2026-05-22
Final Design Submittal	50%	\$4,500,000	2026-05-23	2026-10-02
Released for Construction (RFC) Submittal	25%	\$2,250,000	2026-10-03	2027-01-08

<b>Roadway</b>	<b>\$4,500,000 (7.1%)</b>
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Civil site surface elements within Berths 10/12 project limits: remove existing pavements/curbs/sidewalks/islands/pipe guards; design and construct new pavements (asphalt overlay/full depth/PCC) with minimum sections; maintain grades on berth deck/approaches <=2% (desirable 1-1.5%); provide smooth transitions to adjacent decks/slabs/joints within 1/4 inch; provide geotextile filter fabric where subgrade excavation required; adjust utility castings to within 0.02 ft of final pavement; coordinate access roads to berth deck per AASHTO/Port Authority guidelines; provide permanent pavement markings and signing coordination with Traffic/MOT.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-31	2026-05-15
Final Design Submittal	50%	\$2,250,000	2026-05-16	2026-09-11
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-09-12	2027-01-08

**MOT****\$4,500,000 (7.1%)**

Provide maintenance of traffic (MOT) for surveys and construction including manhole dewatering/cleaning access; develop MOT drawings and work zone protection; coordinate lane closures/detours/diversions within terminal; ensure safe vehicular/pedestrian operations adjacent to active tenant operations; provide temporary traffic control devices, temporary pavement markings, and temporary signage/wayfinding; coordinate with adjacent projects and Port Authority approvals.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-17	2026-05-29
Final Design Submittal	50%	\$2,250,000	2026-05-30	2026-10-09
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-10-10	2027-01-08

**Bridge Structures****\$4,500,000 (7.1%)**

Marine wharf deck replacement for Berths 10 and 12 (treated as bridge-structure type deck): deconstruct/remove existing wharf infrastructure; design and construct new wharf deck supported on deep foundations; provide expansion joints/demarcations; design for heavy live loads (500 psf concurrent vehicular; 2,000 psf stockpile not concurrent); design for HS25 and heavy equipment point loads; design for vessel berthing/mooring loads; accommodate future deck raising (+11.0 ft NAVD88) and future seawall (+14.2 ft NAVD88) via separate intermediate-level drawings/calculations; service life 75 years; corrosion protection study; no stay-in-place forms; remove/cut existing piles 5 ft below mudline; coordinate with adjacent wharves/tenants and FAA constraints.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-10	2026-05-08
Final Design Submittal	50%	\$2,250,000	2026-05-09	2026-10-16
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-10-17	2027-01-08

<b>Misc Structures</b>	<b>\$4,500,000 (7.1%)</b>
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Guard booths: survey existing booth; remove/dispose existing booths and concrete pads; design/furnish/install prefabricated steel guard booths (nominal 8'x6') with concrete pads, power, HVAC, CCTV, lighting, exterior floodlights, downspouts; wet floodproofing below SLRDFE; structural steel platforms for elevating critical electrical equipment above SLRDFE; high-mast lighting poles/foundations and arrays; temporary mooring bollards (3) designed for 130 metric ton SWL; fender systems and mooring bollards at max 36-ft spacing; avian deterrents on lighting/CCTV.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-24	2026-05-01
Final Design Submittal	50%	\$2,250,000	2026-05-02	2026-09-25
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-09-26	2027-01-08

<b>Digital Delivery</b>	<b>\$4,500,000 (7.1%)</b>
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Signed/sealed design documents, calculations, models, and native files submission requirements; maintain electronic formats for geotechnical data compatible with PANYNJ subsurface database; provide design submittal packages (Intermediate, Final, RFC) including calculation books and native structural model files; commissioning documentation and O&M manuals.

PACKAGE	CLAIM %	BUDGET	START	END
Intermediate Design Submittal	25%	\$1,125,000	2026-01-10	2026-05-29
Final Design Submittal	50%	\$2,250,000	2026-05-30	2026-10-30
Released for Construction (RFC) Submittal	25%	\$1,125,000	2026-10-31	2027-01-08

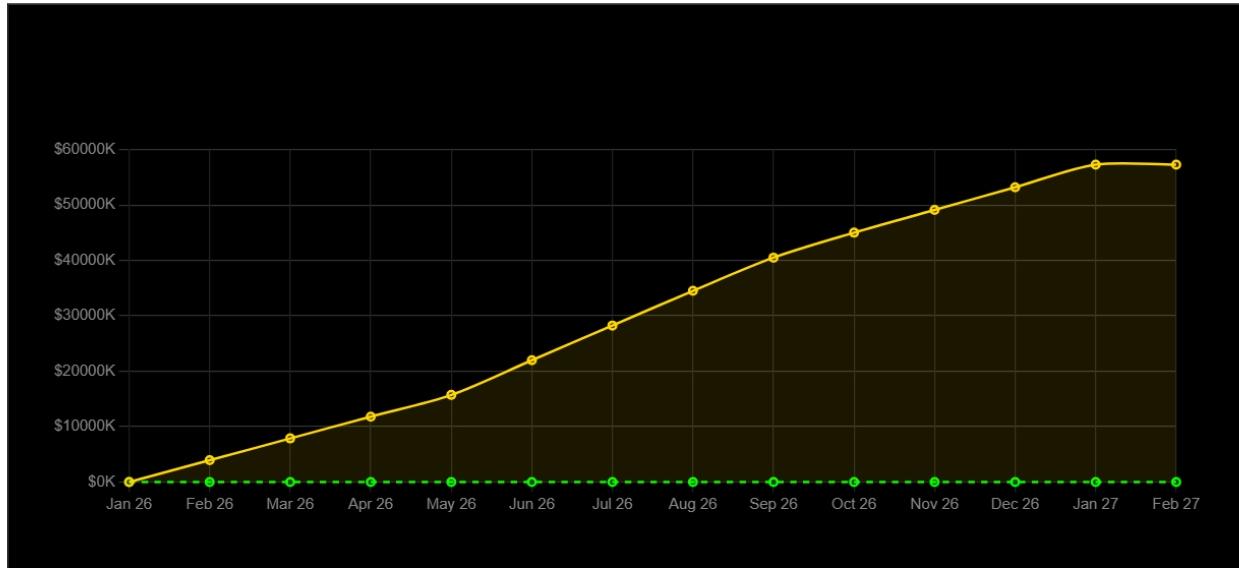
## CHAPTER 5

# Schedule Analysis

13 TOTAL MONTHS	2026-01- 10 START DATE	2027-01- 08 END DATE	363 TOTAL DAYS
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### Schedule Notes

Key submittals include Geotechnical Planning Report (>=20 days before geotech investigation), CP-TMP (>=60 days before construction), Testing & Commissioning Plan (>=30 days before construction), and Intermediate/Final Design submissions for hydraulic models and future scenario drawings. No overall project duration stated.



## CHAPTER 6

# Complete Work Breakdown Structure

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30 WBS Elements: 1 Phases × 10 Disciplines × 3 Packages

WBS #	PHASE	DISCIPLINE	PACKAGE	BUDGET	CLAIM %	START	END
1.1.1	Base	Drainage	Intermediate Design Submittal	\$2,700,000	25%	2026-01-24	2026-05-15
1.1.2	Base	Drainage	Final Design Submittal	\$5,400,000	50%	2026-05-16	2026-09-25
1.1.3	Base	Drainage	Released for Construction (RFC) Submittal	\$2,700,000	25%	2026-09-26	2027-01-08
1.2.1	Base	Environmental	Intermediate Design Submittal	\$1,125,000	25%	2026-01-10	2026-04-24
1.2.2	Base	Environmental	Final Design Submittal	\$2,250,000	50%	2026-04-25	2026-09-04
1.2.3	Base	Environmental	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-09-05	2027-01-08
1.3.1	Base	Traffic	Intermediate Design Submittal	\$2,700,000	25%	2026-01-17	2026-05-08
1.3.2	Base	Traffic	Final Design Submittal	\$5,400,000	50%	2026-05-09	2026-09-18
1.3.3	Base	Traffic	Released for Construction (RFC) Submittal	\$2,700,000	25%	2026-09-19	2027-01-08
1.4.1	Base	Geotechnical	Intermediate Design Submittal	\$1,350,000	25%	2026-01-10	2026-04-10
1.4.2	Base	Geotechnical	Final Design Submittal	\$2,700,000	50%	2026-04-11	2026-08-14
			Released for				

1.4.3	Base	Geotechnical	Construction (RFC) Submittal	\$1,350,000	25%	2026-08-15	2027-01-08
1.5.1	Base	Utilities	Intermediate Design Submittal	\$2,250,000	25%	2026-01-24	2026-05-22
1.5.2	Base	Utilities	Final Design Submittal	\$4,500,000	50%	2026-05-23	2026-10-02
1.5.3	Base	Utilities	Released for Construction (RFC) Submittal	\$2,250,000	25%	2026-10-03	2027-01-08
1.6.1	Base	Roadway	Intermediate Design Submittal	\$1,125,000	25%	2026-01-31	2026-05-15
1.6.2	Base	Roadway	Final Design Submittal	\$2,250,000	50%	2026-05-16	2026-09-11
1.6.3	Base	Roadway	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-09-12	2027-01-08
1.7.1	Base	MOT	Intermediate Design Submittal	\$1,125,000	25%	2026-01-17	2026-05-29
1.7.2	Base	MOT	Final Design Submittal	\$2,250,000	50%	2026-05-30	2026-10-09
1.7.3	Base	MOT	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-10-10	2027-01-08
1.8.1	Base	Bridge Structures	Intermediate Design Submittal	\$1,125,000	25%	2026-01-10	2026-05-08
1.8.2	Base	Bridge Structures	Final Design Submittal	\$2,250,000	50%	2026-05-09	2026-10-16
1.8.3	Base	Bridge Structures	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-10-17	2027-01-08
1.9.1	Base	Misc Structures	Intermediate Design Submittal	\$1,125,000	25%	2026-01-24	2026-05-01
1.9.2	Base	Misc	Final Design	\$2,250,000	50%	2026-05-	2026-09-

		Structures	Submittal			02	25
1.9.3	Base	Misc Structures	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-09-26	2027-01-08
1.10.1	Base	Digital Delivery	Intermediate Design Submittal	\$1,125,000	25%	2026-01-10	2026-05-29
1.10.2	Base	Digital Delivery	Final Design Submittal	\$2,250,000	50%	2026-05-30	2026-10-30
1.10.3	Base	Digital Delivery	Released for Construction (RFC) Submittal	\$1,125,000	25%	2026-10-31	2027-01-08
<b>Grand Total</b>				<b>\$63,000,000</b>			

Friday, January 9, 2026

Design Fee Book – Generated Friday, January 9, 2026