

U.S. DEPARTMENT OF HOMELAND SECURITY
FEDERAL EMERGENCY MANAGEMENT AGENCY

PROJECT WORKSHEET

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DECLARATION NO.	PW REF NO.	DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA 4086 DR NJ	493011	06/06/13	025-04930-00	G	

APPLICANT WORK COMPLETED AS OF:

Belmar (Borough of)	DATE: 6/6/13	PERCENT: 90%
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DAMAGED FACILITY COUNTY

Boardwalk Monmouth

LOCATION LATITUDE LONGITUDE

Belmar (Borough of) 40.18557 -74.01042

Was this site previously damaged? Yes No Unsure

DAMAGE DESCRIPTION AND DIMENSIONS:

DAMAGE DESCRIPTION

On 10/29/2012 post-tropical storm Sandy made landfall near Atlantic City, New Jersey. The National Weather Service (NWS) reported storm surge along the New Jersey Shore in excess of fourteen (14) feet reported. The NWS also recorded sustained winds up to of eighty-eight (88) mph. During the incident period October 29, 2012 and continuing thru November 8, 2012, Sandy caused widespread damage throughout New Jersey including widespread power outages, severe coastal erosion, widespread flooding, and damage or destruction to public properties / infrastructure, and very large volumes of storm related debris. The president declared NJ a major disaster area on October 30, 2012 - assigned FEMA-4086-DR-NJ. Damages to Applicant's owned and maintained boardwalk addressed in this Sub-grant Application are as follows:

See DAMAGE DESCRIPTION AND DIMENSIONS continuation sheet ...

SCOPE OF WORK:

Fund at 75%

WORK COMPLETED

None

WORK TO BE COMPLETED

Applicant will use a combination of Force Account and Contract Services and Equipment to complete the following reconstruction and repairs:

See SCOPE OF WORK continuation sheet ...

PROJECT COST

ITEM	CODE	NARRATIVE	QUANTITY	UNIT	UNIT PRICE	COST
1	0000	WORK TO BE COMPLETED				\$ -
2	9000	CEF Cost Estimate	1.00	LS	\$10,186,390.00	\$ 10,186,390.00
3	9901	Direct Administrative Cost - Subgrantee (estimate)	8.00	Hour	\$98.22	\$ 785.76
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
						\$ -
SUBTOTAL FROM COST CONTINUATION PAGE(S)						\$ -
TOTAL PROJECT COST						\$ 10,187,175.76

PREPARED BY: James Wageman <i>[Signature]</i>	TITLE: Project Specialist
FEMA PAC CREW LEADER: Joseph Cabral <i>[Signature]</i>	STATE PAC CREW LEADER: Sgt TJ Wagner <i>[Signature]</i>
APPLICANT: Colleen Connolly <i>[Signature]</i>	DATE: 6/20/13
	PHONE: 732-681-3434

6/6/13
#6048
RB
6/7/13

and

Page 1 of 5							
FEDERAL EMERGENCY MANAGEMENT AGENCY							
DAMAGE DESCRIPTION & SCOPE OF WORK							
DECLARATION NO.		PW REF NO.		DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA	4086	DR	NJ	493011	06/06/13	025-04930-00	G
APPLICANT						COUNTY	
Belmar (Borough of)						Monmouth	
DAMAGE DESCRIPTION & SCOPE OF WORK (CONTINUED):							
.... continued DAMAGE DESCRIPTION AND DIMENSIONS							
The entire boardwalk was damaged. The description and dimensions are provided in the following section.							
BOARDWALK (North GPS 40.185566, -74.010415) (South GPS 40.168565, -74.016534)							
The Belmar boardwalk trends north-south along the length of the town, extending from First Avenue at the north to 20th Avenue at the south. The boardwalk was 6,436 feet long by 20 feet to 30 feet wide, with a total surface area of approximately 190,000SF. The boardwalk was supported on a driven timber pile foundation in a series of two to four pile bents. The timber piles had a butt diameter of 8 to 12 inches and were 12 foot in length. The piles depth into the sandy soil was an estimated 9 to 10 feet.							
At the boardwalk width of 20 feet the number of piles was typically 3 per section and at the 24 to 30 foot width there were typically 4 piles per section. The sections were 14 feet on center. The 20 foot width had longitudinal length of 1,695 feet and the 24 to 30 foot width existed for 4,741 feet. Using these dimensions, the total number of piles was determined to be approximately 1,753. The timber piles appear to be creosoted treated.							
The piles were connected by 4 inch by 12 inch pressure treated wood girders, supporting 3 inch by 10 inch pressure treated wood stringers installed at 12 inch centers. The deck consisted of 2 inch by 6 inch composite wood decking placed in a parallel pattern perpendicular to the length of the boardwalk with a 5 foot wide "chair rail" in the center of the boardwalk where the boards were placed parallel to the length of the boardwalk.							
At 19 street intersections, the boardwalk included sets of ramps and stairs on the street-side and beachside of the boardwalk. Handrail existed at the stair and ramp locations. Handrails consisted of aluminum, galvanized metal or a combination of 4 inch by 4 inch by 42 inch long vertical wood posts every 5 feet with two horizontal rails comprised of 2 inch by 6 inch wood.							
The boardwalk included an electrical system in a buried PVC conduit and 60 two arm light poles, 16 feet tall. The boardwalk also contained a 3/4 inch diameter water services to drinking fountains and outdoor showers.							
Sand fencing existed along the beach on the seaside of the boardwalk. The sand fencing was estimated from air photos to be 9,500 feet long.							
See DAMAGE DESCRIPTION AND DIMENSIONS continuation sheet ...							
PREPARED BY: James Wageman					TITLE: Project Specialist		

FEDERAL EMERGENCY MANAGEMENT AGENCY

DAMAGE DESCRIPTION & SCOPE OF WORK

DECLARATION NO.				PW REF NO.	DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA	4086	DR	NJ	493011	06/06/13	025-04930-00	G	
APPLICANT							COUNTY	
Belmar (Borough of)							Monmouth	

DAMAGE DESCRIPTION & SCOPE OF WORK (CONTINUED):

.... continued DAMAGE DESCRIPTION AND DIMENSIONS

THE STORM SURGE CAUSED THE FOLLOWING BOARDWALK DAMAGES:

- Approximately 20 percent of the boardwalk piles were scoured out.
- The heads of the remaining piles were damaged by twisting of the stringers and girders by wave action.
- Approximately 1,753 piles were damaged and require replacement.
- Approximately 190,000 SF of boardwalk deck, stringers, and a majority of girders were washed from the supporting piles.
- 19 sets of street-side and beachside stairs and pedestrian ramps were damaged beyond repair. The street-side ramps are 6 feet wide by 22 feet long. The beachside ramps vary in length and were 6 feet wide by average of 23 feet long.
- 19 sets of railings located at the street-side stairs and ramps and at the beachside ramps were destroyed.
- Electrical system (1 inch and 2 inch PVC conduits and wires) buried below the boardwalk was damaged beyond repair.
- 60 two arm metal halide light poles, 16 feet tall, were damaged beyond repair.
- At 8 crossing locations, sewer, water, and electrical services below the boardwalk to beachside buildings and comfort stations were damaged beyond repair. These consisted of 4 to 6 inch PVC sewer pipe, 2 to 4 inch PVC water pipe and 3 to 4 inch PVC electrical conduits.
- 20 galvanized metal bicycle ramps, one at each stair ramp pair, were destroyed.
- 38 concrete trash receptacles, two at each stair ramp pair were destroyed.
- 83 concrete park benches were damaged; the benches consist of concrete pedestals with 2 inch by 4 inch by 8 foot long wood seats.
- Concrete vehicle ramps for beach access at 3rd Ave, 11th Ave, and 20th Ave were damaged by erosion undermining and differential settlement; 60 feet x 15 feet 6 inches thick, 3 locations.
- Concrete sidewalk, stairs and curbs adjacent to boardwalk were undermined and damaged.
- Asphalt pavement and parking striping adjacent to boardwalk was damaged.
- 9,500 LF of sand fencing was destroyed.

PLAYGROUND EQUIPMENT

Four playgrounds located along the length of the boardwalk were damaged as follows:

- 4th Ave Playground (GPS 40.182956, -74.011177) - Playground equipment, consisting of climbing equipment, crawl tubes, slides and swings, were damaged by storm surge and debris and portions floated away.
- 8th Ave Playground (GPS 40.0178839, -74.012640) - Playground equipment, consisting of climbing equipment, crawl tubes, slides and swings, were damaged by storm surge and debris and portions floated away.
- 10th Ave Playground (GPS 40.176870, -74.0130401) - Playground equipment, consisting of climbing equipment, crawl tubes, slides and swings, were damaged by storm surge and debris and portions floated away.
- 17th Ave Playground (GPS 40.171727, -74.015266) - Playground equipment, consisting of climbing equipment, crawl tubes, slides and swings, were damaged by storm surge and debris and portions floated away.

Damages to the boardwalk and playground equipment are a result of the declared disaster.

End of Damage Description and Dimensions

PREPARED BY: James Wageman

TITLE: Project Specialist

FEDERAL EMERGENCY MANAGEMENT AGENCY

DAMAGE DESCRIPTION & SCOPE OF WORK

DECLARATION NO.				PW REF NO.	DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA	4086	DR	NJ	493011	06/06/13	025-04930-00	G	

APPLICANT	COUNTY
Belmar (Borough of)	Monmouth

DAMAGE DESCRIPTION & SCOPE OF WORK (CONTINUED):

... continued SCOPE OF WORK

The applicant is replacing the boardwalk in the same footprint as the original boardwalk. This was confirmed from review of historic aerial photographs, available as-built plans and bid documents for the replacement project.

SCOPE OF WORK TO BE COMPLETED BY CONTRACT SERVICES OR FORCE ACCOUNT IS AS FOLLOWS:

- Replace approximately 1,753 timber piles
- Replace approximately 190,000 SF of girders, stringers, and boardwalk deck.
- Replace 19 sets of street-side and beachside stairs and pedestrian ramps.
- Replace 19 sets of railings located at street-side and beachside stairs and pedestrian ramps.
- Replace electrical system consisting of 1 to 2 inch PVC conduit and wires buried below the boardwalk and attached to the boardwalk.
- Replace 60 two arm light poles, 16 foot high.
- Replace eight (8) sewer, water, and electrical services crossing the boardwalk, including 4 to 6 inch PVC sewer pipe, 2 to 4 inch PVC water pipe and 3 to 4 inch PVC electrical conduits.
- Replace 20 galvanized metal bicycle ramps.
- Replace 40 concrete trash receptacles.
- Replace 83 concrete park benches.
- Replace 9,500 LF of sand fencing.
- Replace concrete vehicle ramps for beach access at 3rd Ave, 11th Ave, and 20th Ave, 60 feet x 15 feet x 6 inches thick, 2,700 SF total.
- Replace concrete sidewalk, stairs and curbs adjacent to boardwalk.
- Replace asphalt pavement and parking striping adjacent to boardwalk.
- Replace playground equipment, consisting of climbing equipment, crawl tubes and slides, at four locations.

CODES AND STANDARDS:

Codes and Standards necessary for the repair to reduce the potential for scour and uplift of the boardwalk and piles include the New Jersey Department of Environmental Protection in NJAC 7:7E "Coastal Zone Management Rules" (CZMR) (see Exhibit A). Published data from Section 7:7E-3A.5 of the CZMR specifies certain minimum requirements, including the following:

- Support piles should be driven at least 10 feet below mean sea level in V-zone locations
- Support joists and timber connections should be anchored through the use of hurricane clips or metal plates

FEMA agrees with the Codes and Standards upgrades. Remaining structural upgrade will be considered in a hazard mitigation proposal, see HMP. Replacement project also includes upgrades to the pedestrian ramps, stairs and handrails to meet current standards.

BOARDWALK EXTENSION:

The Applicant plans to extend the boardwalk from its original footprint to the south from 20th Street to North Boulevard. The extension is 470 feet by 20 feet wide, 410 feet by 20 feet of boardwalk and 60 feet by 20 feet of concrete (470 feet x 20 feet = 9,400 SF). The additional 9,400 SF will result in additional contract costs which will not be considered in the eligible portion of the replacement project.

See SCOPE OF WORK continuation sheet ...

PREPARED BY: James Wageman

TITLE: Project Specialist

FEDERAL EMERGENCY MANAGEMENT AGENCY

DAMAGE DESCRIPTION & SCOPE OF WORK

DECLARATION NO.				PW REF NO.	DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA	4086	DR	NJ	493011	06/06/13	025-04930-00	G	

APPLICANT	COUNTY
Belmar (Borough of)	Monmouth

DAMAGE DESCRIPTION & SCOPE OF WORK (CONTINUED):

... continued SCOPE OF WORK

ADDITIONAL NOTES:**PROCUREMENT:**

The applicant is required to adhere to state, county, and/or local government procurement rules and regulations and maintain adequate records to support the basis for all purchasing of goods and services.

CEF:

The estimated cost to repair the boardwalk was prepared using the FEMA Cost Estimating Format (CEF). Using the CEF program a reserve for change orders and applicant costs for A/E design, project management and permits were added.

When project worksheets are prepared for "large projects", those with budgets greater than \$65,700 for FY 1012, an adjustment must be made during the closeout process in order to match the actual eligible dollars spent with the estimate in the original project worksheet. This will require an amendment to the project worksheet to be prepared to capture the over-run/under-run.

HAZARD MITIGATION:

The applicant has requested a Hazard Mitigation Proposal at this site.

DIRECT ADMINISTRATIVE COSTS:

Direct Administrative costs were estimated at this time. Claimed DAC must be tracked, charged and accounted for. The costs must be both eligible and reasonable, Reference Disaster Assistance Policy DAP 9525.9, Section 324 Management Costs and Direct Administrative Costs, Section VII (D). (1).

PERMITS:

The PA Project Specialist has advised the applicant that it is their responsibility to obtain all local, state and Federal permits prior to any construction or debris disposal activity referenced on this project. The applicant has also been advised that not obtaining and maintaining these documents may jeopardize any Federal funding related to the declared disaster.

The applicant provided the attached CAFRA Individual Permit, Provision Permit, dated January 11, 2013, see Exhibit Q.

SPECIAL CONSIDERATIONS:

Any changes to the improved scope of work will require re-evaluation by the Environmental/Historic Preservation section of compliance with environmental and historic considerations under the National Environmental Policy Act. Non-compliance with this requirement may jeopardize the receipt of federal funding.

DOCUMENTATION:

The Project Specialist has reviewed documentation required for this PW and these documents are attached to the PW and on file at the Subgrantee's office. The Project Specialist has advised the Subgrantee to retain these records for a period of three (3) years from the date of closeout.

See SCOPE OF WORK continuation sheet ...

PREPARED BY: James Wageman

TITLE: Project Specialist

FEDERAL EMERGENCY MANAGEMENT AGENCY

DAMAGE DESCRIPTION & SCOPE OF WORK

DECLARATION NO.				PW REF NO.	DATE	FIPS NO.	CATEGORY	EMMIE NO.
FEMA	4086	DR	NJ	493011	06/06/13	025-04930-00	G	

APPLICANT	COUNTY
Belmar (Borough of)	Monmouth

DAMAGE DESCRIPTION & SCOPE OF WORK (CONTINUED):

... continued SCOPE OF WORK

LIST OF EXHIBITS INCLUDED IN THE PW:

- A – CODES AND STANDARDS LETTER
- B – COST ESTIMATE FOR EXTRA PILES
- C – AS-BUILT PLANS
- D – DECEMBER 2012 BID PLANS
- E – JANUARY 2013 CONSTRUCTION PLANS
- F – PLANS FOR ELECTRICAL WORK
- G – PLANS FOR UTILITY SERVICES AND CONCRETE RAMPS AND PADS
- H – PLANS FOR CONCRETE AND ASPHALT PAVEMENT AND STRIPING
- I – RAILING PLANS
- J – LIST OF PLAYGROUND EQUIPMENT
- K – DECEMBER 2012 BID RESULTS
- L – COUNCIL RESOLUTIONS FOR BOARDWALK CONTRACTS
- M – BID SCHEDULE & PORTION OF CONTRACT WITH EPIC MANAGEMENT
- N – CHANGE ORDER NO. 1 TO CONTRACT WITH EPIC MANAGEMENT
- O – CODES AND STANDARDS JUSTIFICATION LETTER FOR C.O. NO. 1
- P – INSPECTION AND DAMAGE ASSESSMENT BACK-UP
- Q - CAFRA PERMIT

----- END SCOPE OF WORK -----

PREPARED BY: James Wageman

TITLE: Project Specialist

FEDERAL EMERGENCY MANAGEMENT AGENCY

SCOPE NOTES

APPLICANT	PW REF NO.	CATEGORY	FIPS NO.	DISASTER	
Belmar (Borough of)	493011	G	025-04930-00	4086	NJ

Check next to appropriate comment for Data Specialist to add to the Scope of Work

Topic	Comment
Record Retention	Complete records and cost documents for all approved work must be maintained for at least 3 years from the date the last project was completed or from the date final payment was received, whichever is later.
Direct Administrative Costs	<input checked="" type="checkbox"/> Direct Administrative cost cannot be determined at this time. However, claimed DAC must be tracked, charged and accounted for. The costs must be both eligible and reasonable (Ref Disaster Assistance Policy DAP 9525.9, Section 324 Management Costs and Direct Administrative Costs, Section VII (D). (1).
Mitigation	No Mitigation Opportunities Identified because: <input type="checkbox"/> PW is for Emergency Work - Mitigation not eligible. <input type="checkbox"/> Work already completed and no add-on mitigation is feasible. <input type="checkbox"/> Mitigation not technically feasible. <input type="checkbox"/> Applicant has decided not to incorporate mitigation.
CEF	<input checked="" type="checkbox"/> This project was estimated using the Cost Estimated Format (CEF).
CEF - Not Used	This project was not estimated using the CEF because: <input type="checkbox"/> The PW is a small project. <input type="checkbox"/> The PW is for Emergency Work. <input type="checkbox"/> The work is greater than 90% complete at the time of inspection.
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>
	<input type="checkbox"/>

PREPARED BY: James Wageman TITLE: Project Specialist

SPECIAL CONSIDERATIONS

DISASTER	APPLICANT NAME	PW REF NO.	FIPS NO.	DATE
4086 NJ	Belmar (Borough of)	493011	025-04930-00	06/06/13

Yes N Unsur facility or item of work have insurance and/or is it an insurable risk? (e.g., buildings, equipment, vehicles, etc.)

Buildings along boardwalk are insured.

Yes N Unsur facility located within a floodplain or coastal high hazard area, or does it have an impact on a floodplain or wetland?

Yes, see ABFE Map, Zone V, EI 15ft, Asbury Park SE

Yes N Unsur

3. Is the damaged facility or item of work located within or adjacent to a Coastal Barrier Resource System Unit or an Otherwise Protected Area?

Yes N Unsur

4. Will the proposed facility repairs/reconstruction change the pre-disaster condition? (e.g., footprint, material, location, capacity, use or function)

Yes N Unsur

See Hazard Mitigation Proposal.

5. Does the applicant have a hazard mitigation proposal or would the applicant like technical assistance for a hazard proposal?

Yes N Unsur

See Hazard Mitigation Proposal.

Yes N Unsur facility on the National Register of Historic Places or the state historic listing? Is it older than 50 years? Are there more, similar buildings near the site?

Facility Constructed In:

Yes N Unsur

7. Are there any pristine or undisturbed areas on, or near, the project site? Are there large tracts of forestland?

Yes N Unsur

8. Are there any hazardous materials at or adjacent to the damaged facility and/or item of work?

Yes N Unsur

Existing piles appear to be creosote treated. Applicant shall dispose of hazardous materials in an approved disposal facility.

9. Are there any other environmentally or controversial issues associated with the damaged facility and/or item of work?

No, replacement of damaged facility will be in the footprint of the original boardwalk. CAFRA Permit is provided, see Exhibit Q.

10

Yes, located within 200ft of the Atlantic Ocean.

PREPARED BY: James Wageman

FEDERAL EMERGENCY MANAGEMENT AGENCY

HAZARD MITIGATION PROPOSAL (HMP)

DISASTER		APPLICANT		PW REF NO.	FIPS NO.	CATEGORY
4086	NJ	Belmar (Borough of)		493011	025-04930-00	G

SCOPE OF WORK:

During the incident period October 29, 2012 and continuing thru November 8, 2012, Sandy caused widespread damage throughout New Jersey. The National Weather Service (NWS) reported storm surge along the New Jersey Shore in excess of fourteen (14) feet reported. The Belmar Boardwalk sustained significant damage. 4in by 12in girders supporting 3in by 10in stringers were ripped from the timber pile foundation. About 20 percent of piles were scoured out and the heads of the remaining piles were damaged by twisting of the stringers and girders.

Mitigation: The Applicant proposes to replace all piles and increase their number and depth to prevent future scour damage and twisting of the piles. The footprint for the boardwalk does not change. At the boardwalk width of 20 feet, the number of piles increases from 3 to 4 piles and at the 24 to 30 foot width the increase is from 4 to 5 piles. The 20 foot width has a longitudinal length of 1,695 feet and the 24 to 30 foot width exists for 4,741 feet. The longitudinal spacing is 14 feet on center, the same as the original boardwalk. The total number of piles increase from 1,753 to 2,188, a 25% increase. The length of each pile increases from 12 feet to 25 feet. The 25 foot length of piles is required as part of the Codes and Standard upgrade. Additional straps and fasteners will be required for the extra number of piles. All the proposed work is to be done within the existing footprint of the boardwalk.

Cost: The contract cost (CEF Part A) to construct an "in-kind" boardwalk with Codes and Standards upgrade is \$9,124,464. The cost to install the greater number and length of piles, (2,188 - 1,753) or 435 additional piles, and the additional straps and screws is \$547,688. A construction cost estimate for the extra piles, straps and screws can be found in Exhibit B. The contract cost to construct an upgraded boardwalk is \$9,124,464 + \$547,688, or \$9,672,152.

For 15% Rule:

This Hazard Mitigation Proposal (HMP) is 6.00% $((\$547,688 / \$9,124,464) \times 100)$ of the replacement costs. In accordance with FEMA Recovery Policy 9526.1, VII. B.1, "Mitigation measures may amount to up to 15% of the total eligible cost of the eligible repair work on a particular project." This HMP is cost effective.

If this HMP is approved, and the mitigation is not performed, the Applicant must apply for a change in the Scope or Work and de-obligation of the HMP funding. Applicant refusal or failure to complete the work of the HMP may limit future FEMA funding of repairs at the site, in the event that a similar disaster event results in similar damage at the site.

This HMP is for estimating purposes only. The final placement and configuration of the mitigation measures at this location shall be determined in the field by the Applicant.

This HMP is subject to further review.

ESTIMATE OF WORK

ITEM	CODE	DESCRIPTION	QUANTITY	UNIT	UNIT PRICE	COST
ITEMS REQUIRED FOR MITIGATION						
1						
2	0909	Contract to construct upgraded boardwalk (CEF Part A)	1.00	LS	\$9,672,152.00	\$9,672,152.00
ITEMS NOT REQUIRED IF MITIGATION IS ACCEPTED						
3						
4	9001	Contract cost minus mitigation portion	-1.00	LS	\$9,124,464.00	(\$9,124,464.00)

Total In-Kind Repair/Replacement Cost of Damaged Element(s)		\$9,124,464.00	Total HMP Cost (Do Not Include in the PW)		\$547,688.00
% of Total Eligible Cost		6.00%			
Eligibility		15% Rule			
TECHNICAL SPECIALIST FOR MITIGATION (SIGNATURE) Matthew J. Neimes (HPA Specialist)			Agency	Date	
RECOMMENDED BY (SIGNATURE)			TITLE	Agency	Date
CONCURRENCE BY STATE INSPECTOR			Agency	Date	
CONCURRENCE BY APPLICANT			Agency	Date	

NOTE: Signature by the Federal Inspector is not an approval of this work, and signature by the state and Local Representative is not a commitment to perform the work.

HAZARD MITIGATION PROPOSAL (HMP) SUMMARY

DISASTER		APPLICANT	PW REF NO.	FIPS NO.	CATEGORY
4086	NJ	Belmar (Borough of)	493011	025-04930-00	G

Mitigation activity will be performed on sites in this project.

If there is no mitigation activity explain why not.

Codes and Standards

Good Construction Practices

Mitigation Policy

15 percent

100 percent list

Benefit/Cost Ratio (Attach B/C analysis)

Other:

Enter cost of mitigation project as percent of in-kind repair or as dollar amount:

Dollar Amount:

Percent:

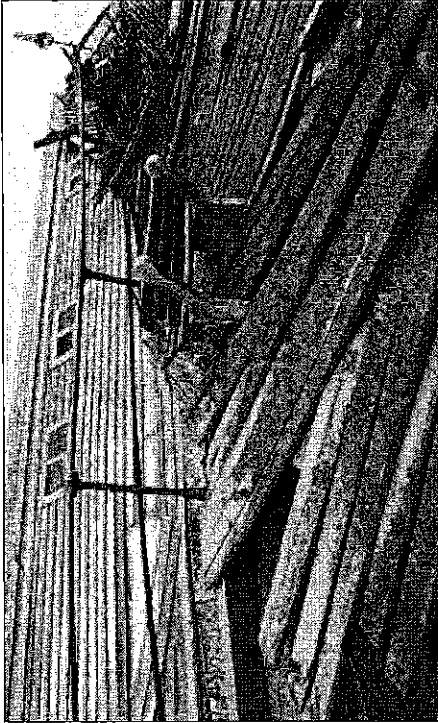
Check here if you wish to attach a Hazard-Mitigation Proposal

PHOTO SHEET

APPLICANT	Belmar (Borough)	CATEGORY	G
FIPS NO.	02604930-00	FWREFNO	0493014



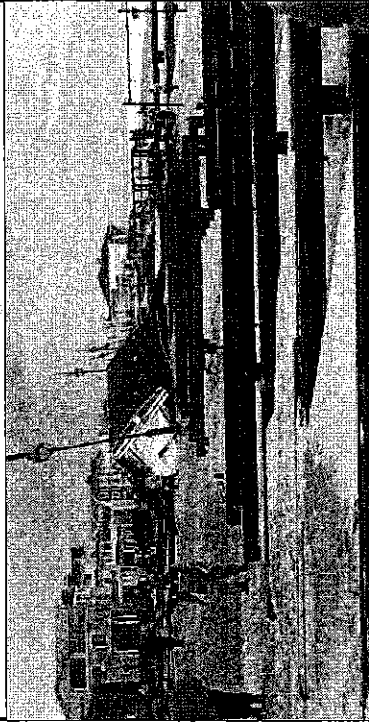
Aerial view of south portion of Belmar boardwalk.



File photo, dated October 30, 2012. Belmar boardwalk after storm. Comfort station is in background.



File photo, dated October 30, 2012. Belmar boardwalk after storm.

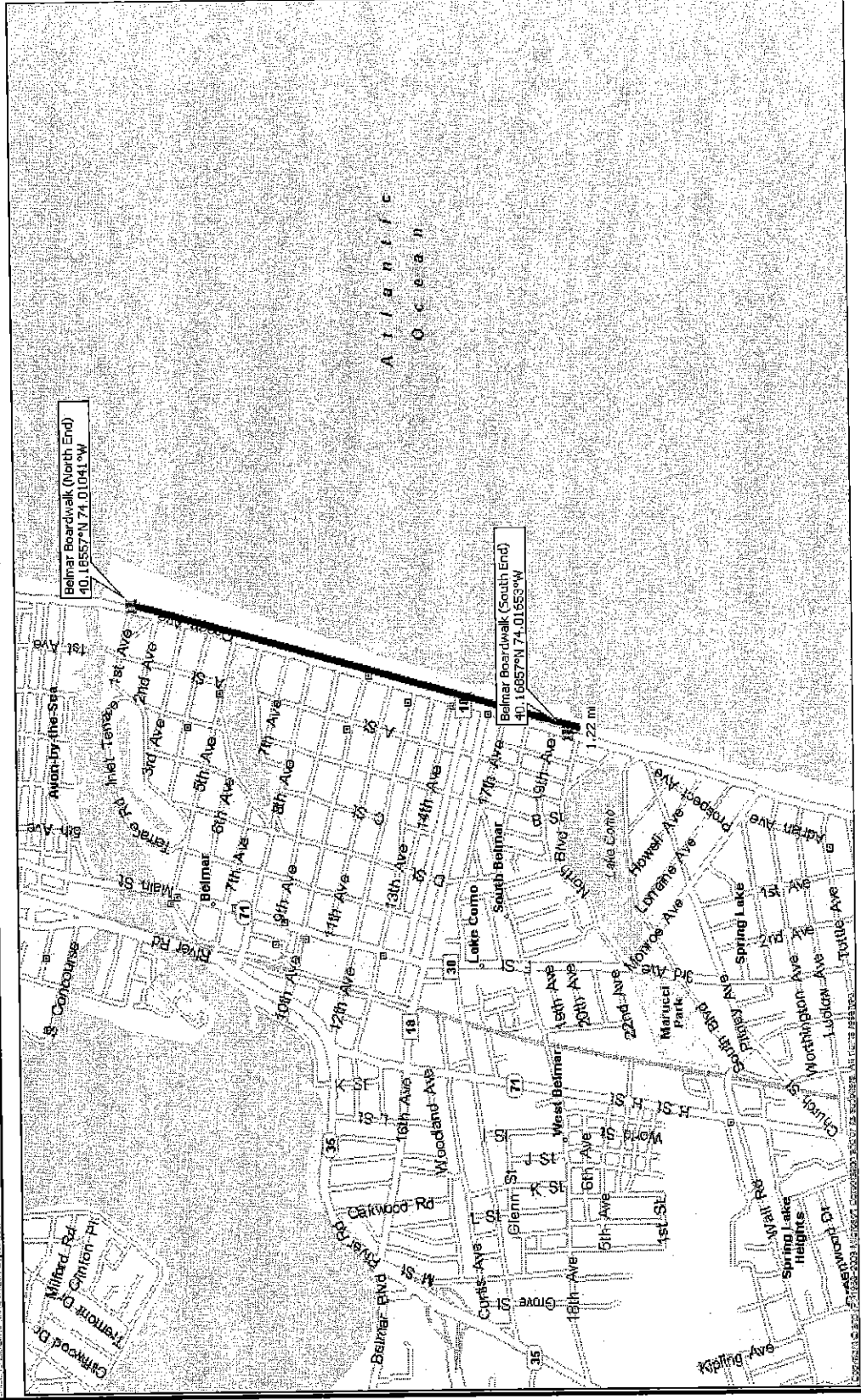


File photo, dated October 30, 2012. Belmar boardwalk after storm. Comfort station is in background.

FEDERAL EMERGENCY MANAGEMENT AGENCY

LOCATION MAP

APPLICANT	Belmar (Borough)	CATEGORY	C
FIPS NO.	025-04930-00	PW REF NO.	0-93011



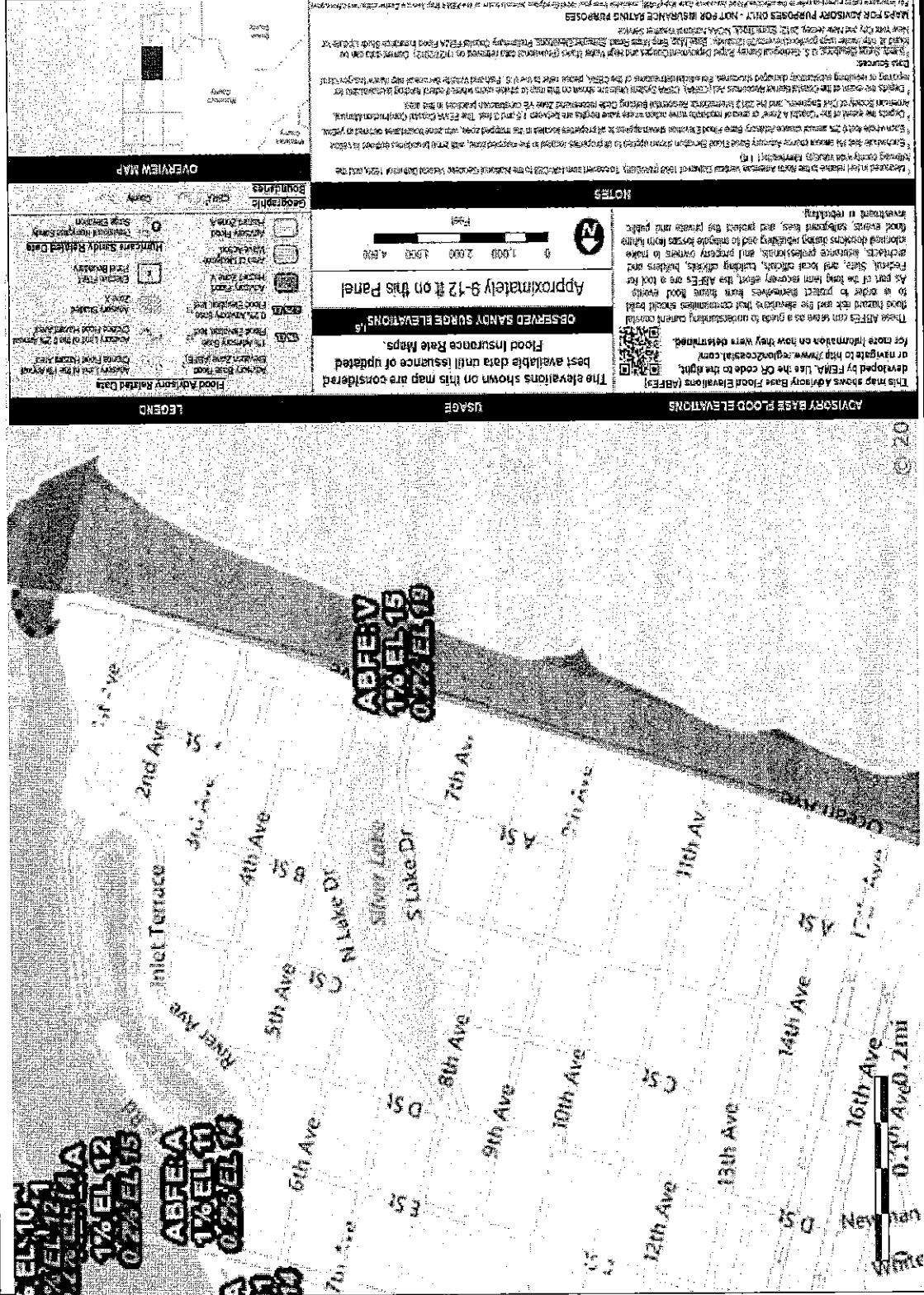
FIRMETTE

APPLICANT **Belmar (Borough)**

FIPSNO **025504930500**

CATEGORY **C**

PWREFNO **049301**



NOTES

The elevations shown on this map are considered the best available data until issuance of updated Flood Insurance Rate Maps.

Observed Sandy Surge Elevations are approximately 9-12 ft on this Panel.

© 2010

This map shows Advisory Base Flood Elevations (ABFEs) developed by FEMA. Use the CR code to the right, or navigate to <http://www.fema.gov/cr> for more information on how they were determined.

These ABFEs can serve as a guide to understanding current coastal flood hazards and the benefits that communities stand to gain from flood hazard mitigation. The ABFEs are a tool for Federal, State, and local officials, builders and other stakeholders, and property owners to make informed decisions about building and property losses in future flood events. Subsequent fees, and protect the private and public interests in rebuilding.

Reviewed and approved by the FEMA National Flood Insurance Program (NFIP) for use in the NFIP. The NFIP is a federal program that provides flood insurance to property owners in the United States. The NFIP is a federal program that provides flood insurance to property owners in the United States. The NFIP is a federal program that provides flood insurance to property owners in the United States.

MAPS FOR ADVISORY PURPOSES ONLY - NOT FOR INSURANCE RATING PURPOSES

For more information on the ABFEs, please visit the FEMA website at www.fema.gov/cr.

LEGEND

Symbol	Description
[Solid Black]	Flood Hazard
[Thick Dashed Line]	Flood Insurance Rate Map
[Thin Dashed Line]	Observed Sandy Surge Elevations
[Thin Solid Line]	Other

BOUNDARIES

Symbol	Description
[Dotted Line]	County
[Dashed Line]	City
[Thin Solid Line]	Other

Geographic

Symbol	Description
[Wavy Line]	Water
[Solid Line]	Other

CEF Fact Sheet

6/5/2013

Belmar (Borough of) - Boardwalk

Date of Estimate:	June 5, 2013
FEMA Region:	2
Preparer(s):	James Wageman (Scott Dingelman)
Applicant Name:	Belmar (Borough of)
Project Title:	Boardwalk
Damaged Facility:	Boardwalk
Declaration Number:	4086
Project Number:	493011
PA ID No.:	025-04930-00
Date of inspection:	January 10, 2013
Event Date(s)	10/19/2012 through 11/8/2012
Work Category:	G
Type of Work: <i>(Enter New, Repair, etc.)</i>	1). Boardwalk
	2). Play Structures and Site Items
Preparer's Notes:	
<p>NOTES: (Sheet 1 of 2)</p> <p>The applicant has contracted with Epic Management under competitive bids to reconstruct the original footprint of the boardwalk from First Avenue to 20th Avenue and build an extension from 20th Avenue to North Boulevard. The boardwalk's original footprint is 6,436 feet long by 20 feet to 30 feet wide, with a surface area of approximately 190,000 SF. The boardwalk project square footage is 199,400 SF. The ratio of the original square footage to the project square footage was used to determine the eligible portion of the Epic Management contract.</p> <p>The project was competitive bid in December 2012 in order to reconstruct the boardwalk before the Memorial Day in 2013. The original bid document specified 215,000 SF of boardwalk and did not provide all of the necessary details for access ramps, electrical conduit and distribution wiring, light pole foundations and fixtures, utility services, concrete ramps, and sidewalks, asphalt paving and striping at the boardwalk interface to Ocean Avenue interface. Additional bid documents were competitively bid and change orders to Epic contract were negotiated.</p> <p>CHANGE ORDERS to Epic Management contract include:</p> <ul style="list-style-type: none"> • CHANGE ORDER S-1: Deck Pattern and Support Revisions <ul style="list-style-type: none"> o Original bid included installation of lpe hardwood decking. Due to environmental pressure the Borough switched to composite lumber (Trex) decking. Trex does not have nearly the strength of lpe and deck patterns (for added restraint to shear) and support revisions were necessary, see Exhibit O. o Work includes extension, deduction made in CEF. • CHANGE ORDER S-2; Beach Access Ramp Revisions <ul style="list-style-type: none"> o Extend seaside access ramps to conform to codes. o No ramps are proposed in the extension • CHANGE ORDER S-3; Electric Conduits <ul style="list-style-type: none"> o Replace the electrical system along length of boardwalk. o Work includes extension, deduction made in CEF (see continuation sheet). 	

CEF Fact Sheet (2)

6/5/2013

Belmar (Borough of) - Boardwalk

Date of Estimate:	May 21, 2013
FEMA Region:	2
Preparer(s):	James Wageman (Scott Dingelman)
Applicant Name:	Belmar (Borough of)
Project Title:	Boardwalk
Damaged Facility:	Boardwalk
Declaration Number:	4086
Project Number:	493011
PA ID No.:	025-04930-00
Date of Inspection:	January 10, 2013
Event Date(s)	10/19/2012 through 11/8/2012
Work Category:	G
Type of Work: <i>(Enter New, Repair, etc.)</i>	1). Boardwalk - Bids Awarded 2). Play Structures and Site Items
Preparer's Notes:	
<p>NOTES: (Sheet 2 of 2)</p> <p>Additional CHANGE ORDER to Epic Management contract includes:</p> <ul style="list-style-type: none"> • CHANGE ORDER S-4; Light Pole Foundations <ul style="list-style-type: none"> o Install 64 concrete light pole foundations. o 4 light pole foundations are part of the extension and a reduction is made in the CEF. <p>Additional contracts for the boardwalk replacement include:</p> <ul style="list-style-type: none"> • Precise Construction – Utility Services and Concrete for Boardwalk • A&A Curbing – Concrete, Paving and Striping (adjacent to boardwalk) • Mastercraft Iron - Railing for boardwalk stairs and ramps • Pemberton Electrical – Purchase of 64 two arm light poles, 16 foot high • Pemberton Electrical – Purchase of electrical distribution equipment • Maggio & Son Electric – Electrical installation for boardwalk (Epic installed the conduit and light foundations) • Marturano Recreation – Playground equipment for four locations <p>Except for the railing at the stairs and ramps and the playground equipment, above contracts include work in the boardwalk extension area. Reductions are made in the CEF.</p> <p>Applicant did not provide quantity of sand fencing in place before the storm and destroyed by the storm. FEMA estimated the quantity using scalable air photos. The applicant will need to provide this information during closeout and an adjustment will need to be made to the project worksheet.</p> <p>The applicant still needs to hire contract services and equipment to complete the following repairs:</p> <ul style="list-style-type: none"> • Replace estimated 20 bicycle ramps. • Replace estimated 40 trash receptacles. • Replace estimated 83 park benches. • Replace estimated 9,500 LF of sand fencing. 	

CEF Notes

6/5/2013

Belmar (Borough of) - Boardwalk

Damaged Facility:	Boardwalk
Applicant Name:	Belmar (Borough of)
Project Number:	493011
Date of Estimate:	June 5, 2013
Preparer(s):	James Wageman (Scott Dingelman)
Part A Notes:	<p>A.1 - Unit costs for uncompleted permanent work are based on RSMeans Building Cost using CostWorks. Cost data updated to 1st quarter 2013. Location in CostWorks set as Long Branch, NJ. City Adjustment Factor is 1.0.</p> <p>A.2 -</p>
Part B Notes:	<p>B.1 - 1). Estimate includes a cost of 0% for safety and security since this should be included in the contractor's competitive bid. Estimate includes a cost of 0%, since this should be included in the contractor's competitive bid. Estimate includes a cost of 0%, since this should be included in the contractor's competitive bid. 2). Estimate includes a cost of 0% for safety and security since this should be included in the contractor's competitive bid. Estimate includes a cost of 0%, since this should be included in the contractor's competitive bid. Estimate includes a cost of 0%, since this should be included in the contractor's competitive bid.</p> <p>B.2 - 1). General conditions costs are already in the contractor's competitive bid. 2). General conditions costs have been included for site supervision and coordination of the general site items.</p>
Part C Notes:	<p>C.1 - 1). Estimate includes a contingency of 0.0% for design uncertainty since this should be included in the contractor's competitive bid. 2). Estimate includes a contingency of 0.0% for design uncertainty since this should be included in the contractor's competitive bid.</p> <p>C.2 - 1). No constructability issues are expected since this is primarily a repair. 2). No constructability issues are expected since this is primarily a repair.</p> <p>C.3 - 1). Costs for access, storage and staging are already included in the contractor's competitive bid. 2). Costs for access, storage and staging are already included in the contractor's competitive bid.</p> <p>C.4 - No economies of scale 1). or 2).</p>
Part D Notes:	<p>D.1 - 1). Included in General Contractor's competitive bid. 2). Included in General Contractor's competitive bid.</p> <p>D.2 - 1). Included in General Contractor's competitive bid. 2). Included in General Contractor's competitive bid.</p> <p>D.3 - 1). Included in General Contractor's competitive bid. 2). Included in General Contractor's competitive bid.</p>
Part E Notes:	<p>E - 1). No factor, construction underway 2). No factor, construction underway</p>
Part F Notes:	<p>F.1 - No plan review fees anticipated for 1). or 2).</p> <p>F.2 - No permit fees anticipated for 1). or 2).</p>

CEF Notes

6/5/2013

Belmar (Borough of) - Boardwalk

Part G Notes:	G.1 -	1). Estimate includes a cost of 3% for changes in the eligible scope of work that may be encountered during the project due to uncertainty. 2). Estimate includes a cost of 5.5% for changes in the eligible scope of work that may be encountered during the project due to uncertainty.
Part H Notes:	H.1 -	1). Included in the factor for the design contract. 2). Included in the factor for the design contract.
	H.2 -	1). Estimate includes a cost of 8.2% for design services based on a project of average complexity as defined in the PA Guide, June 2007. 2). Estimate includes a cost of 3.0% for design services based on Basic Construction Inspection Services defined in the PAQ Guide, June 2007.
	H.3 -	1). Included in the factor for the design contract. 2). Included in the factor for the design contract.
Miscellaneous Notes & Comments:		Reference to recommended values guidance provided in the CEF Instructional Guide, August 2009.

CEF Part A

6/5/2013

Belmar (Borough of) - Boardwalk

Item No.	Item Description Title / Component Description	Div. # or Cost Code	Qty	Units	Unit Price	City Adj Factor	Total Cost
Completed Work Items							
Completed Permanent Items							
					\$ -		\$ -
					\$ -		\$ -
					\$ -		\$ -
					\$ -		\$ -
					Completed - Permanent Total		\$ -
Completed Non-Permanent Items							
					\$ -		\$ -
					\$ -		\$ -
					\$ -		\$ -
					\$ -		\$ -

CEF Part A

6/5/2013

Belmar (Borough of) - Boardwalk

Item No.	Item Description Title / Component Description	Div. # or Cost Code	Qty	Units	Unit Price	City Adj Factor	Total Cost
Completed - Non-Permanent Total							\$ -
Uncompleted Work Items							
Uncompleted Permanent Items							
1	1): Boardwalk/Competitively Bid Work Items						
2	Replacement of damages: First Avenue to 20th Avenue = 6,436 ft and approximately 190,000 SF. Boardwalk reconstruction contract with Epic Management for composite decking: First Avenue to North Blvd includes extension of 470 LF x 20 Ft wide = 9,400 SF; Contract Total: 190,000 SF + 9,400 SF = 199,400 SF. Replace Original Footprint: (190,000/199,400) x \$5,160,000 = \$4,916,750; Minus Extra Piles (see Exhibit B): \$4,916,750 - \$304,500 = \$4,612,250 Eligible "in-kind" cost per square foot: \$4,612,250/190,000 SF = \$24.28/SF	9003	190,000.00	SF	\$ 24.28	1.00	\$ 4,613,200.00
3	Streetside access, stairs and ramps, Epic Management Change Order No.1 S-1 - Structural Support Revisions, Epic Management: \$1,017,544.50, includes work in boardwalk extension; Replace Original Footprint: (190,000/199,400) x \$1,017,544.50 = \$969,576 Minus Extra Straps and Screws for Extra Piles (see Exhibit B): \$969,576 - \$243,187.50 = \$726,388.50 Eligible "in-kind" cost per square foot = \$726,388.50/190,000 SF = \$3.82/SF	9003	3,750.00	SF	\$ 63.00	1.00	\$ 236,250.00
4	Change Order No.1 S-2 - Beach Access Ramp Revisions, Epic Management: \$879,809 First Avenue to 20th Avenue Streetside access reconstruction with composite decking. Based on plans, no streetside access facilities are along the boardwalk extension.	9003	1.00	LS	\$ 879,809.00	1.00	\$ 879,809.00
6	Change Order No.1 S-3 - Electrical Conduit, Epic Management: \$451,448 Includes work in boardwalk extension Costs per square foot = \$451,448/199,400SF = \$2.26. Eligible "in kind" portion is 190,000SF at \$2.26/SF	9003	190,000.00	SF	\$ 2.26	1.00	\$ 429,400.00
7	Change Order No.1 S-4; Light Pole Foundations, Epic Management: \$116,029.25 Based on plans, 4 of 64 light poles are located in the boardwalk extension. Cost per light pole foundation = \$116,029.25/64 = \$1,812.96/light pole foundation Eligible "in kind" portion is 60 at \$1,812.96 EA	9003	60.00	EA	\$ 1,812.96	1.00	\$ 108,777.60
8	Utility Services and Concrete for Boardwalk, Precise Construction: \$468,375 Includes work in boardwalk extension Costs per square foot = \$468,375/199,400SF = \$2.35. Eligible "in kind" portion is 190,000SF at \$2.35/SF	9003	190,000.00	SF	\$ 2.35	1.00	\$ 446,500.00
9	Concrete, Paving and Striping to Ocean Avenue (adjacent to boardwalk), A&A Curbing: \$343,208 Includes work in boardwalk extension Costs per square foot = \$343,208/199,400SF = \$1.72. Eligible "in kind" portion is 190,000 SF at \$1.72/SF	9003	190,000.00	SF	\$ 1.72	1.00	\$ 326,800.00
10	Railing for Boardwalk Stairs and Ramps, Mastercraft Iron: \$265,845 Based on plans, no stairs and ramps access facilities are along the boardwalk extension.	9003	1.00	LS	\$ 265,845.00	1.00	\$ 265,845.00
11	Purchase of boardwalk light poles, Pemberton Electrical Supply: \$368,473.70 Based on plans, 4 of 64 light poles are located in the boardwalk extension. Cost per light pole foundation = \$368,473.70/64 = \$5,757.40/light pole Eligible "in kind" portion is 60 at \$5,757.40 EA	9003	60.00	EA	\$ 5,757.40	1.00	\$ 345,444.00

CEF Part A

6/5/2013

Belmar (Borough of) - Boardwalk

Item No.	Item Description Title / Component Description	Div. # or Cost Code	Qty	Units	Unit Price	City Adj Factor	Total Cost
12	Purchase of electrical distribution equipment, Pemberton Electrical Supply: \$52,691.92 Includes work in boardwalk extension Costs per square foot = \$52,691.92/199,400SF = \$0.26. Eligible "in kind" portion is 190,000SF at \$0.26/SF	9003	190,000.00	SF	\$ 0.26	1.00	\$ 49,400.00
13	Electrical installation for boardwalk (excluding conduit in CO S-3), Maggio & Son Electric: \$225,000 Includes work in boardwalk extension Costs per square foot = \$225,000/199,400SF = \$1.13. Eligible "in kind" portion is 190,000SF at \$1.13/SF	9003	190,000.00	SF	\$ 1.13	1.00	\$ 214,700.00
14							Uncompleted Boardwalk Bid Items and Change Orders - Total \$ 8,641,925.60
15							
16	2). Play Structures and General Site Items						
17	Playground Equipment Purchase, four sites. 4th Ave, 8th Ave, 10th Ave and 17th Ave	9003	1.00	LS	\$ 324,000.00	1.00	\$ 324,000.00
18	Benches; Site seating, park benches, precast concrete, with backs, wood rails, 8ft long; 83 units	12934 313 0100	83.00	EA	\$ 1,066.00	1.00	\$ 88,478.00
19	Trash Receptacles; Refuse receptacle; Trash receptacles, concrete, precast, sandblasted, 2' to 2-1/2' wide, 3' high, 40 units	12 93 2310 2000	40.00	EA	\$ 746.50	1.00	\$ 29,860.00
20	Bike Racks; permanent, 10' long, 20 units	1168 1310 0200	20.00	EA	\$ 499.50	1.00	\$ 9,990.00
21	Sand fence; Snow fence on wood posts, 10ft OC, 4ft high, includes 2ft below ground; Estimate from air photos 9,500ft	0258 1310 7001	9,500.00	EA	\$ 3.18	1.00	\$ 30,210.00
22							Uncompleted - Play Structures and General Site Items \$ 482,538.00
							Uncompleted - Permanent Total \$ 9,124,463.60
	Uncompleted Non-Permanent Items						
					\$ -		\$ -
					\$ -		\$ -
					\$ -		\$ -
							\$ -
							Uncompleted - Non-Permanent Total \$ -

CEF Summary of Uncompleted Work

6/5/2013

Belmar (Borough of) - Boardwalk

		1) Boardwalk	2) Play Structures and Site Items	\$	\$	\$	\$	\$	Total
A "Base Costs" for Construction Work-In Trades									
A.1	Permanent Work (CEF Part A)	\$ 8,641,926	\$ 482,538			\$ -	\$ -	\$ -	\$ 9,124,464
A.2	Non-Permanent Job Specific Work (CEF Part A)								\$ -
Part A Total		\$ 8,641,926	\$ 482,538	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,124,464
B General Requirements and General Conditions									
B.1	General Requirements	Guide Low to High		Enter % in Appropriate Column					
	Safety & Security	4%	6.0%	0.0%	0.0%				
	Temporary Services & Utilities	0%	1.0%	0.0%	0.0%				
	Quality Control	0%	1.0%	0.0%	0.0%				
	Submittals	0%	5.0%	0.0%	0.0%				
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
B.2	General Conditions (4.25%)	\$ -	\$ 20,508	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,508
Part B Total		\$ -	\$ 20,508	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 20,508
PART A through B SUBTOTAL		\$ 8,641,926	\$ 503,046	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,144,971
C Construction Cost Contingencies									
C.1	Design-Phase Scope Contingencies	Guide Low to High		Enter % in Appropriate Column					
	Preliminary Engineering Analysis	7.0%	20.0%						
	Working Drawings	2.0%	10.0%						
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C.2	Facility or Project Constructability	See IG for Values		Enter % in Appropriate Column					
	Facility or Project Type and Complexity								
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C.3	Access, Storage & Staging	Guide Low to High		Enter % in Appropriate Column					
	Access Contingencies	0.0%	4.0%						
	Storage Contingencies	0.0%	4.0%						
	Staging Contingencies	0.0%	4.0%						
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
C.4	Economies of Scale			-1.9%	-0.5%	0.0%	0.0%	0.0%	
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Part C Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PART A through C SUBTOTAL		\$ 8,641,926	\$ 503,046	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,144,971
D General Contractor's Overhead and Profit									
D.1	GC's Home Office Overhead	7.7%							
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D.2	GC's Insurance, Payment & Performance Bonds	3.3%							
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
D.3	General Contractor's Profit			0.0%	0.0%	0.0%	0.0%	0.0%	
	New Construction								
	Repair/Re-Equipt								
		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
Part D Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PART A through D SUBTOTAL		\$ 8,641,926	\$ 503,046	\$ -	\$ -	\$ -	\$ -	\$ -	\$ 9,144,971

CEF Summary of Uncompleted Work

6/5/2013

Belmar (Borough of) - Boardwalk							
	1). Boardwalk	2). Play Structures and Site Items	\$ -	\$ -	\$ -	\$ -	Total
E Cost Escalation Factors							
Cost Escalation Factor	Months						
	Monthly Factor						
Part E Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PART A through E SUBTOTAL		\$ 8,641,926	\$ 503,046	\$ -	\$ -	\$ -	\$ 9,144,971
F Plan Review and Permit Construction Cost							
F.1	Plan Review Fees						
	(List Individual Requirements Separately)						
Part F.1 Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
F.2	Construction Permit Fees						
	(List Individual Requirements Separately)						
Part F.2 Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PART A through F SUBTOTAL		\$ 8,641,926	\$ 503,046	\$ -	\$ -	\$ -	\$ 9,144,971
G Applicant's Reserve for Change Orders							
Applicant's Reserve for Change Orders		3.0%	5.5%	7.0%	7.0%	7.0%	
Part G Total		\$ 259,258	\$ 27,639	\$ -	\$ -	\$ -	\$ 286,897
PART A through G SUBTOTAL		\$ 8,901,183	\$ 530,685	\$ -	\$ -	\$ -	\$ 9,431,869
H Applicant's Project Management And Design Costs							
H.1	Applicant's Project Management - Design Phase	1.0%					
Part H.1 Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
H.2	A/E Design Contract Applicability						
	Above Average Complexity (Curve A)	8.5%	18.5%	5.6%	5.6%	5.6%	
	Average Complexity (Curve B)	8.3%	11.9%	4.5%	4.5%	5.6%	
	Basic Construction Inspection Services	3.0%	3.0%	3.0%	3.0%	3.0%	
A/E Design Contract Cost							
	Above Average Complexity (Curve A)	\$ -	\$ -	\$ -	\$ -	\$ -	
	Average Complexity (Curve B)	\$ 738,601	\$ -	\$ -	\$ -	\$ -	
	Basic Construction Inspection Services	\$ -	\$ 15,921	\$ -	\$ -	\$ -	
Part H.2 Total		\$ 738,601	\$ 15,921	\$ -	\$ -	\$ -	\$ 754,522
H.3	Project Management - Construction Phase						
		3.0%	5.7%	6.0%	6.0%	6.0%	
Part H.3 Total		\$ -	\$ -	\$ -	\$ -	\$ -	\$ -
PART A through H SUBTOTAL		\$ 9,639,785	\$ 546,606	\$ -	\$ -	\$ -	\$ 10,186,390
TOTAL OF UNCOMPLETED WORK							\$ 10,186,390

CEF Total Project Summary

6/5/2013

Summary

Belmar (Borough of) - Boardwalk

		Completed	Uncompleted	Total
Complete Project Total for Completed and Uncompleted Work		\$ -	\$ 10,186,390	\$ 10,186,390
PART A	"Base Costs" for Construction Work In Trades	\$ -	\$ 9,124,464	\$ 9,124,464
	A.1 Permanent Work	\$ -	\$ 9,124,464	\$ 9,124,464
	A.2 Non-Permanent Job Specific Work (CEF Part A)	\$ -	\$ -	\$ -
PART B	General Requirements and General Conditions	\$ -	\$ 20,508	\$ 20,508
	B.1 General Requirements	\$ -	\$ -	\$ -
	B.2 General Conditions	\$ -	\$ 20,508	\$ 20,508
PART C	Construction Cost Contingencies (Design and Construction)	\$ -	\$ -	\$ -
	C.1 Standard Design-Phase Scope Contingencies	\$ -	\$ -	\$ -
	C.2 Facility or Project Constructability	\$ -	\$ -	\$ -
	C.3 Access, Storage, and Staging Contingencies	\$ -	\$ -	\$ -
	C.4 Economies of Scale in New Construction	\$ -	\$ -	\$ -
PART D	General Contractor's Overhead and Profit	\$ -	\$ -	\$ -
	D.1 General Contractor's Home Office Overhead Costs	\$ -	\$ -	\$ -
	D.2 General Contractor's Insurance, Payment, and Performance Bonds	\$ -	\$ -	\$ -
	D.3 Contractor's Profit	\$ -	\$ -	\$ -
PART E	Cost Escalation Allowance	\$ -	\$ -	\$ -
PART F	Plan Review and Construction Permit Costs	\$ -	\$ -	\$ -
	F.1 Plan Review Fees	\$ -	\$ -	\$ -
	F.2 Construction Permit Fees	\$ -	\$ -	\$ -
PART G	Applicant's Reserve for Construction	\$ -	\$ 286,897	\$ 286,897
PART H	Applicant's Project Management and Design Costs	\$ -	\$ 754,522	\$ 754,522
	H.1 Applicant's Project Management - Design Phase	\$ -	\$ -	\$ -
	H.2 Architecture & Engineering Design Contract Costs	\$ -	\$ 754,522	\$ 754,522
	H.3 Project Management - Construction Phase	\$ -	\$ -	\$ -



BIRDSALL SERVICES GROUP
ENGINEERS & CONSULTANTS

EXHIBIT A
CODES & STANDARDS
LETTER

VIA E-MAIL & REGULAR MAIL

February 19, 2013

Job No.: 00002-117000

Borough of Belmar
601 Main Street
Belmar, NJ 07719

Attn: Colleen Connolly, Borough Administrator

Re: **Belmar Boardwalk**
Design Codes and Standards

Dear Ms. Connolly:

Birdsall Services Group (BSG) has performed a cost-efficient and code-compliant design of the proposed Belmar boardwalk, inclusive of all ramps, stairs, and platforms. The design of this boardwalk is in strict conformance with all applicable structural design standards suitable for boardwalk construction.

The primary design criteria, structural design, and accessibility compliance have been determined in conformance with the following codes:

- New Jersey Uniform Construction Code (NJUCC)
- 2009 International Building Code, NJ Edition (IBC)
- ASCE 7-05: Minimum Design Loads for Buildings and Other Structures
- ASCE 24-05: Flood Resistant Design and Construction
- AASHTO LRFD Bridge Design Specifications, 5th Edition
- AASHTO Guide Specifications for Design of Pedestrian Bridges
- ANSI/AF&PA NDS-2005: National Design Specification for Wood Construction
- ICC/ASI A117.1-2003 American National Standard: Accessible and Usable Buildings and Facilities
- NJAC 7:7E Coastal Zone Management Rules

From these codes and their referenced standards, the loading criteria for the design of the boardwalk were determined to be as follows:



- Dead load: Actual weights of girders, joists, decking, railings, etc.
- Live load:
 - Boardwalk = 85 pounds per square foot (psf) (loading requirement per AASHTO for elevated walkways)
 - Stairs = 100 psf (IBC)
- Wind load (IBC/ASCE 7-05):
 - Basic wind speed (3-second gust), $V = 115$ miles per hour
 - Exposure Category C
 - Importance Factor = 1.00
- Seismic load (IBC/ASCE 7-05):
 - Site Class D
 - Mapped spectral acceleration for short periods, $S_s = 0.30g$
 - Mapped spectral acceleration for 1-second period, $S_1 = 0.06g$
- Flood load (IBC/ASCE 7-05):
 - V-Zone waves – 3 feet or higher
 - Erosion and scour included in design
 - Impact loads considered in design
 - Hydrostatic, hydrodynamic loads, wave loads, and breaking wave loads all have been included in design

Additionally, the boardwalk has been designed in complete conformance with the regulations set forth by the New Jersey Department of Environmental Protection in NJAC 7:7E "Coastal Zone Management Rules". Section 7:7E-3A.5 reads as follows:

- (a) The construction of oceanfront or bayfront boardwalks should address a number of engineering concerns related to structural support, resistance to vertical and horizontal water and wind loads, and scouring. The construction of boardwalks along tidal shoreline is acceptable, in accordance with the following standards:



BIRDSALL SERVICES GROUP
ENGINEERS & CONSULTANTS

Borough of Belmar
Colleen Connolly
February 19, 2013
Page 3 of 3
Job No. 00002-117000

1. All timber support piles shall be a minimum of eight inches (8") in diameter;
2. Support piles should be driven to a depth of at least -10 feet (mean sea level), for all V-zone locations. In A-zones, the depth of penetration should be at least -five feet (5') (mean sea level);
3. The method for insertion of piles should be a pile driver or drop hammer;
4. All support joists and timber connections should be anchored through the use of hurricane clips or metal plates; and
5. All metal fasteners, including but not limited to bolts, screws, plates, clips, anchors and connectors, shall be hot dipped galvanized.

Finally, the boardwalk and all associated ramps and stairs are designed in full compliance with ADA regulations per "ICC/ASI A117.1-2003 American National Standard: Accessible and Usable Buildings and Facilities", including, but not limited to, ramp slopes, stair tread and riser dimensions, handrail design and dimensions, and surface materials.

Please feel free to let me know if you have any comments or questions and I would be happy to address them. You can reach me at 732-380-1700, Extension 1274 or at rmaloney@birdsall.com if you require any further assistance.

Very truly yours,

BIRDSALL SERVICES GROUP, INC.

A large, stylized handwritten signature in black ink, appearing to read "Richard C. Maloney".

Richard C. Maloney, P.E.
Senior Vice President - Transportation/Structural Services

RCM:lkc

cc: Chris Priest, Witt Associates

EXHIBIT B
COST ESTIMATE
FOR EXTRA PILES

Belmar - Boardwalk Extra Piles, Straps and Screws

Item No.	Item Description Title / Component Description	Div. # or Cost Code	Qty	Units	Unit Price	City Adj Factor	Total Cost
Extra Piles, Straps and Screws (see NOTES below)							
Extra 25 Ft long Piles							
1	Timber piles, treated wood pile, C.C.A., 2.5 lb /C.F., 21' - 35' long, 12" bulbs, excludes mobilization or demobilization	31 62 1910 1680	10,875	V.L.F.	\$ 28.00	1.0000	\$ 304,500.00
Replacement Sub-Total							\$ 304,500.00
Extra Straps and Screws							
1	Bolt, hex head, plain steel, 3/4" dia x 12" L, A307, incl nut & washer (25% of 1,800 required for CO No.1)	05 05 2310 2700	450	Ea.	\$ 14.70	1.0000	\$ 6,615.00
2	Timber connectors, split rings, twist straps, 18 gauge, 16" x 1-1/4" (25% of 1,800 required for CO No.1)	06 05 2 360 4580	450	Ea.	\$ 9.05	1.0000	\$ 4,072.50
3	Machine screw, steel, round head, #10 x 2" L (25% of 300,000 required for CO No.1)	05 05 2335 0300	750	C	\$ 310.00	1.0000	\$ 232,500.00
Replacement Sub-Total							\$ 243,187.50
Replacement Project Total							\$ 547,687.50

NOTES:

1. Number of Piles - Original Footprint with Codes & Standards:

25 Ft long Piles, 14 Ft OC
(3 per 20 Ft width, 1,695 LF; 4 per 24 -30 Ft width, 4,741 LF), Total: 1,753 Piles

2. Number of Piles - Replacement Project within Original Footprint:

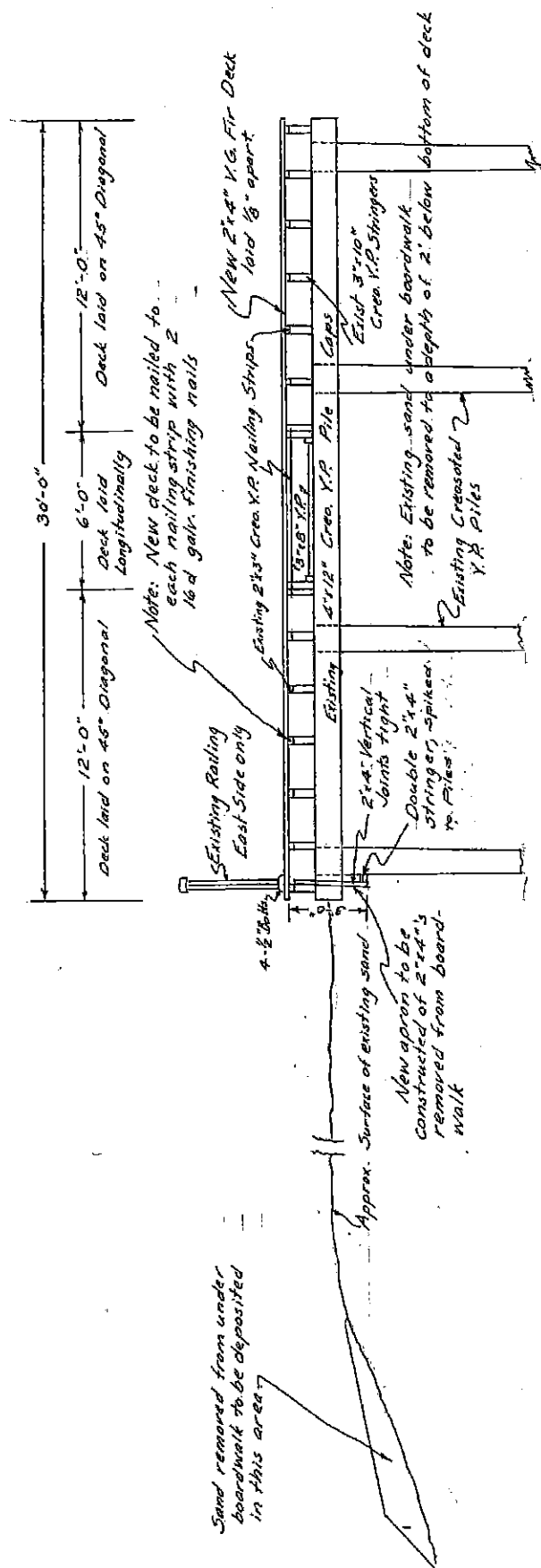
25 Ft long Piles, 14 Ft OC,
(4 per 20 Ft width, 1,695 LF; 5 per 24 -30 Ft width, 4,741 LF), Total: 2,188 Piles

3. Extra Piles (VLF):

$(2,188 - 1753) \times 25 \text{ VLF} = 10,875 \text{ VLF}$

4. Extra Straps and Screws:

$((2,188 \text{ piles}/1753 \text{ piles}) - 1) \times 100 = 25\% \text{ more}$



TYPICAL CROSS SECTION

Scale 1/4" = 1'-0"

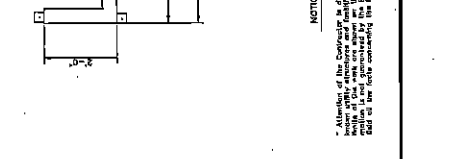
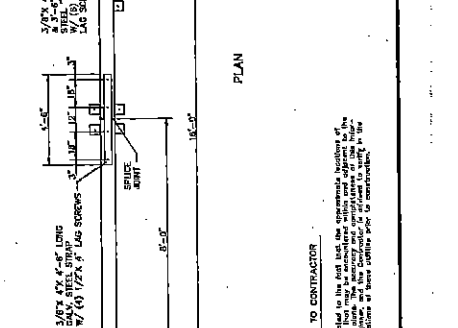
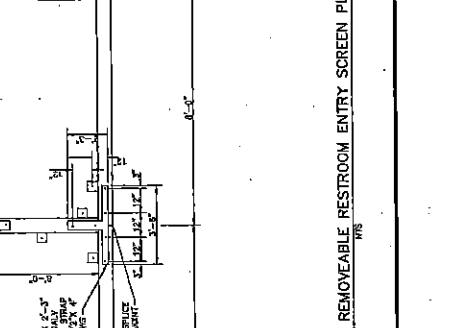
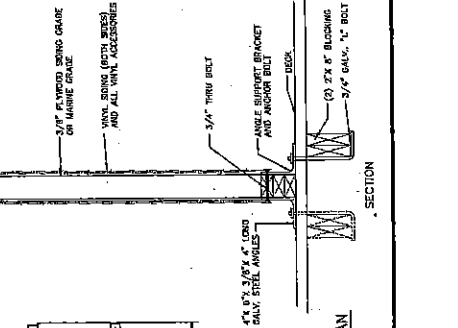
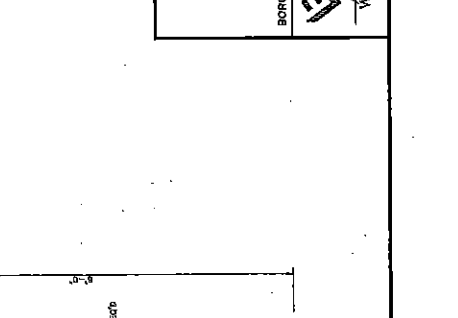
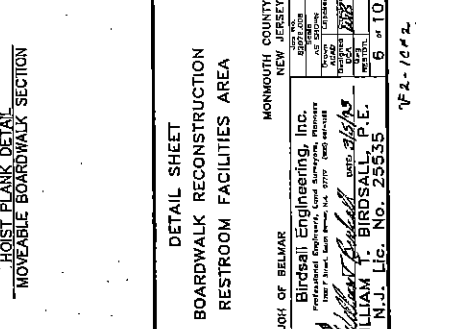
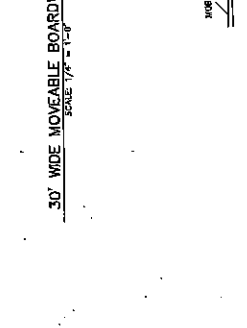
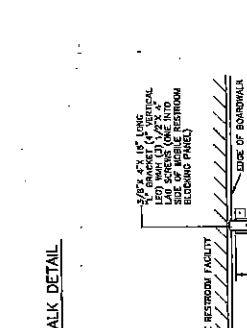
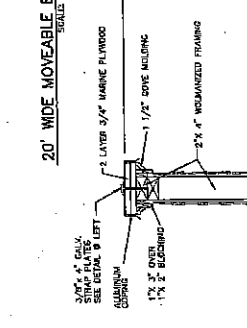
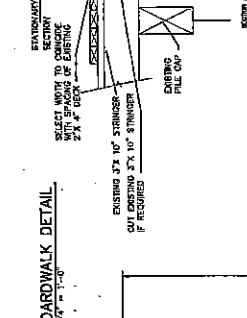
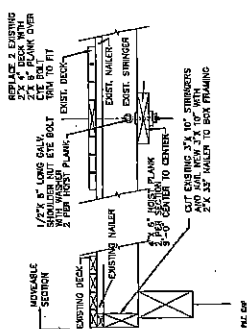
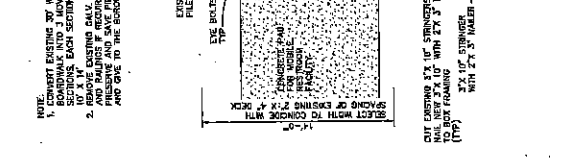
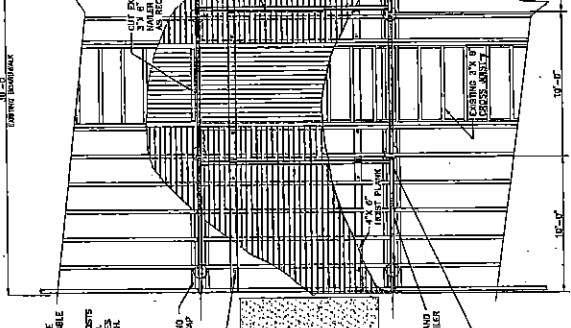
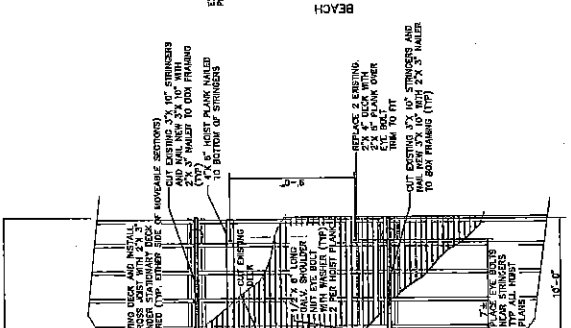
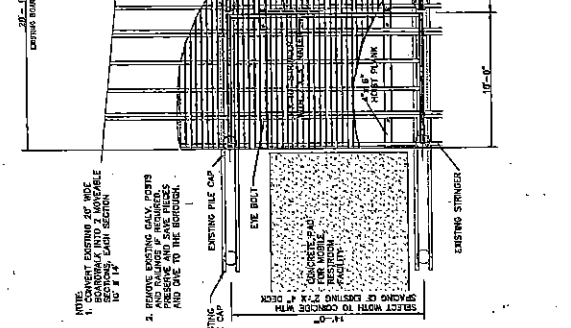
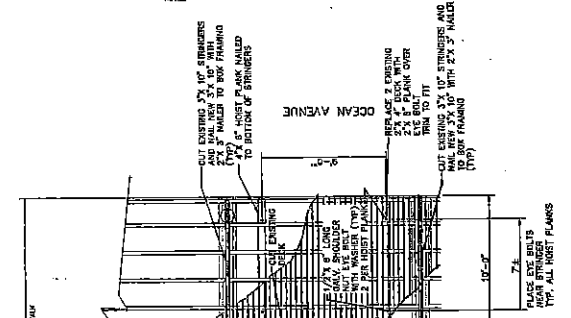
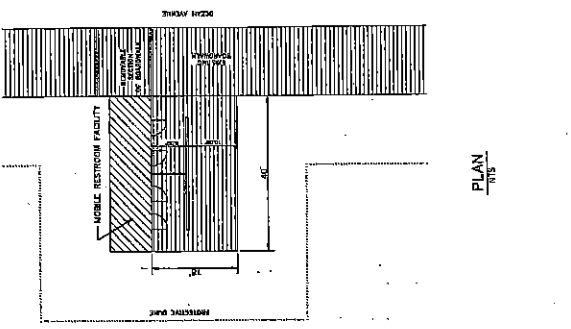
EXHIBIT C
AS-BUILT PLANS
(2 Sheets)

BOROUGH OF BELMAR
MONMOUTH COUNTY, NEW JERSEY
PLAN FOR CONSTRUCTION OF
NEW 2' x 4' BOARDWALK DECK
 February 1960

Charles W. Driddeall
 Borough Engineer

F 2-10

82, 67



DETAIL SHEET
BOARDWALK RECONSTRUCTION
RESTROOM FACILITIES AREA

BOROUGH OF BELMAR
 MONMOUTH COUNTY
 NEW JERSEY

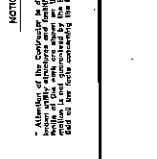
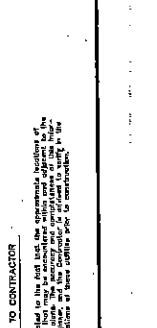
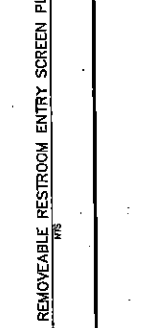
Birdsall Engineering, Inc.
 Professional Engineers, Land Surveyors, Planners
 1000 Route 100, Suite 200, Belmar, NJ 07715
 PHONE: 908.328.1111 FAX: 908.328.1112
 WWW: WWW.BIRDSALL.COM

PROJECT NO. 2013-015
 SHEET NO. 6 OF 10
 N.J. Lic. No. 25535

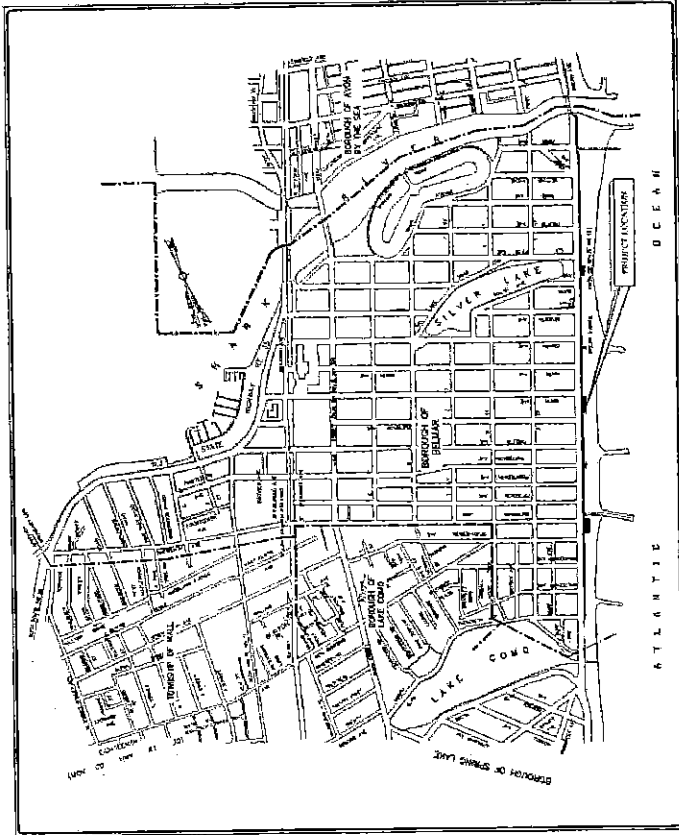
NOTICE TO CONTRACTOR

* Attention of the Contractor is directed to the fact that the topographic location of the existing restroom and building footings have been established and shown on this plan. The contractor shall verify the location of the building and building footings prior to construction.

REMOVABLE RESTROOM ENTRY SCREEN PLAN
 1/8"



BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVENUE BOROUGH OF BELMAR MONMOUTH COUNTY, NEW JERSEY



KEY MAP
NTS

GOVERNING BODY	
MAYOR	MATTHEW WIGBERTY
ADMINISTRATOR	COLLEEN CONNOLLY
BURGOISSER/COUNCIL	PAUL GILGAN GAIL HEDRICK JULIAN MAGERS KIRSTEN NICOLAY
BURGOISS CLERK	APRIL CLAUDIO

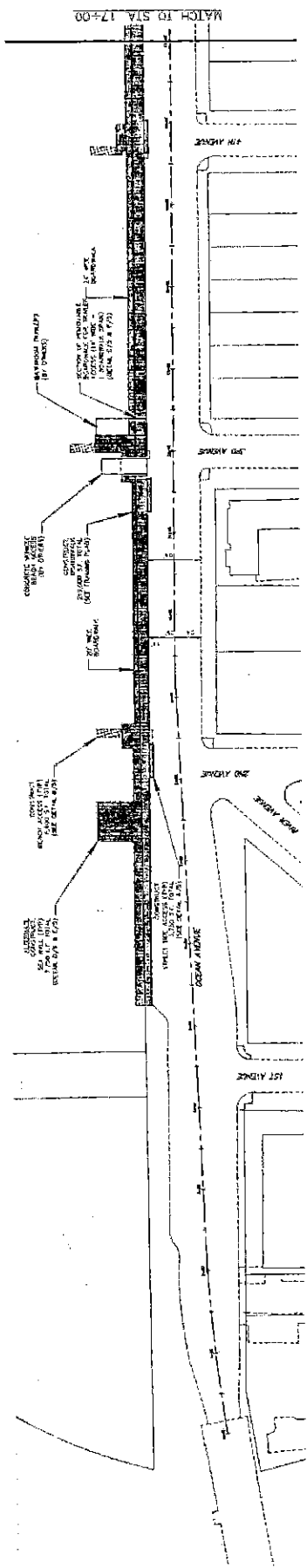
**EXHIBIT D
DECEMBER 2012
BID DOC PLANS FOR
EPIC MANAGEMENT
CONTRACT (5 Sheets)**

UTILITY CONTACTS	
ELECTRIC	AT&T/VERIZON SERVICE CENTER BELMONT AVENUE BELLEVILLE, NJ 07003 AT&T/VERIZON BELLEVILLE
TELEPHONE	AT&T/VERIZON SERVICE CENTER BELMONT AVENUE BELLEVILLE, NJ 07003 AT&T/VERIZON BELLEVILLE
WATER	MONMOUTH COUNTY 3000 WASHINGTON AVENUE FREEHOLD, NJ 07728 TEL: 732-226-1000
SEWER	MONMOUTH COUNTY 3000 WASHINGTON AVENUE FREEHOLD, NJ 07728 TEL: 732-226-1000
STORMWATER	MONMOUTH COUNTY 3000 WASHINGTON AVENUE FREEHOLD, NJ 07728 TEL: 732-226-1000
PLUMBING	PLUMBING SERVICE CENTER 1000 BELMONT AVENUE BELLEVILLE, NJ 07003 TEL: 732-226-1000
TELEVISION	AT&T/VERIZON SERVICE CENTER BELMONT AVENUE BELLEVILLE, NJ 07003 AT&T/VERIZON BELLEVILLE
INDEX OF SHEETS	SEE LIST OF SHEETS ATTACHED TO THIS SET OF PLANS

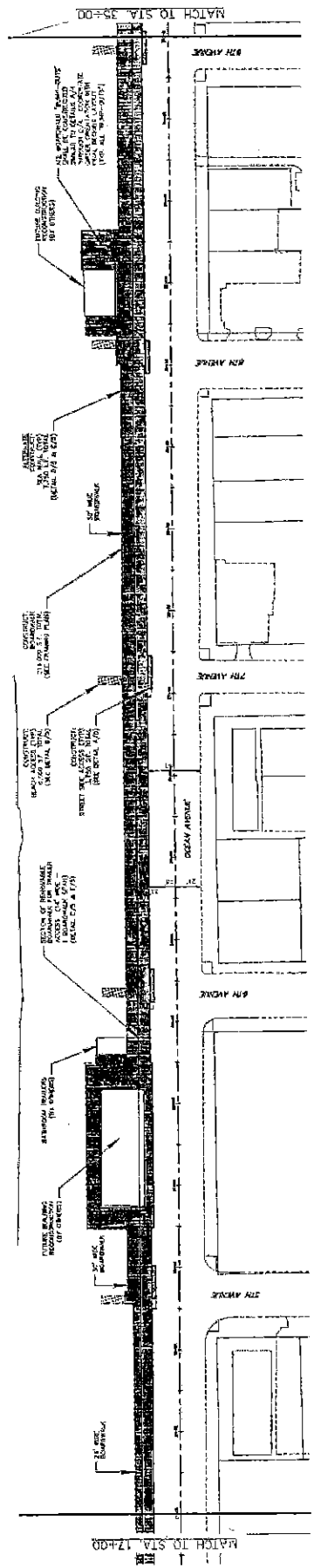
NOTICE TO CONTRACTOR

The Contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies. The Contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies. The Contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies.

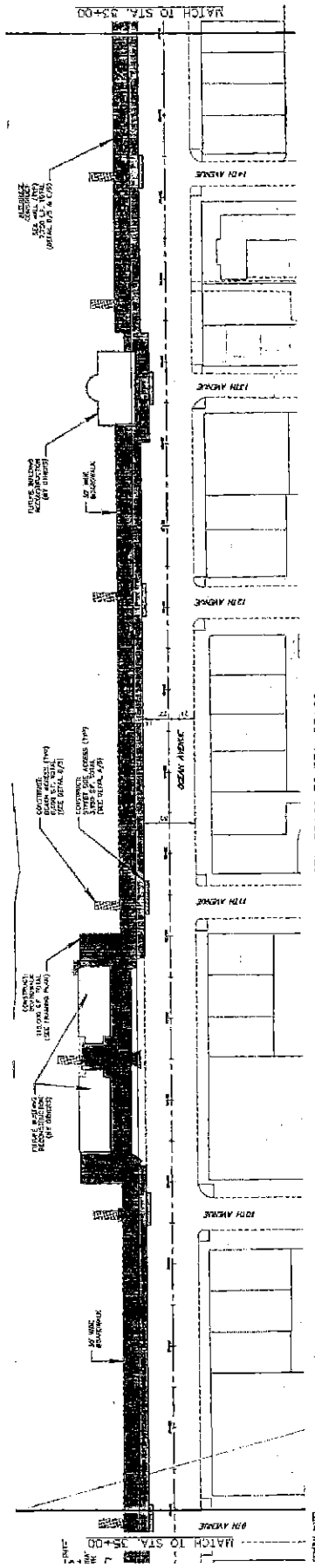
	BIRDSALL SERVICES GROUP CONSULTING ENGINEERS 1000 BELMONT AVENUE BELLEVILLE, NJ 07003 TEL: 732-226-1000
	PAUL COLLARISE, P.E. PROJECT MANAGER
TITLE SHEET BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVENUE BOROUGH OF BELMAR	DATE: 12/12/12 SCALE: AS SHOWN SHEET NO.: 1 OF 5



SIA. 0+00 TO STA. 17+00

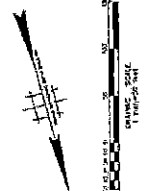


SIA. 17+00 TO STA. 35+00



SIA. 35+00 TO STA. 53+00

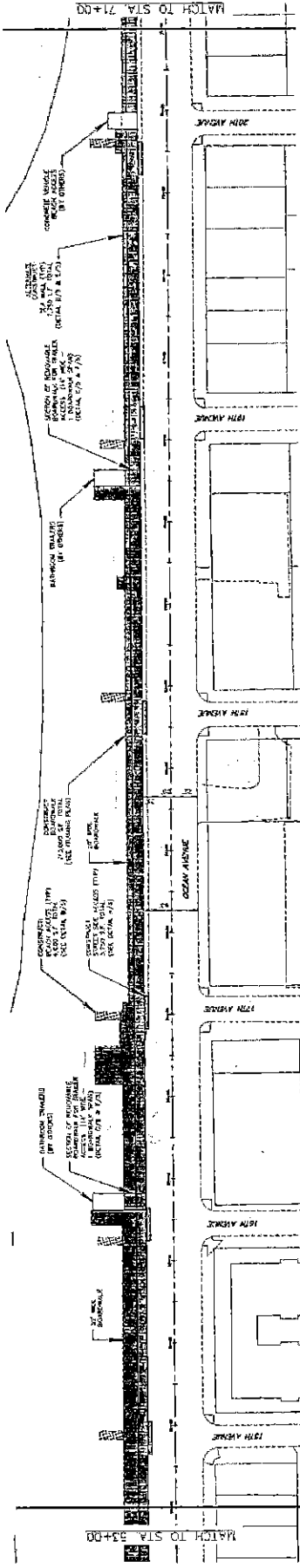
- GENERAL NOTES:
1. APPROVED TO THE DESIGN BY THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS, LOCATIONS AND GRADES OF ALL UTILITIES AND EXISTING STRUCTURES.
 2. ALL UTILITIES AND EXISTING STRUCTURES SHALL BE PROTECTED BY CONCRETE. ALL CONCRETE SHALL BE 4000 PSI STRENGTH AND SHALL BE REINFORCED WITH #4 BARS AT 18\"/>
 - 3. ALL CONCRETE SHALL BE PLACED AND FINISHED TO THE DESIGN GRADE AND SHALL BE CURED FOR 28 DAYS.
 - 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
 - 5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
 - 6. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
 - 7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
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 - 9. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
 - 10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.
 - 11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF BELMONT AND THE STATE OF MASSACHUSETTS.



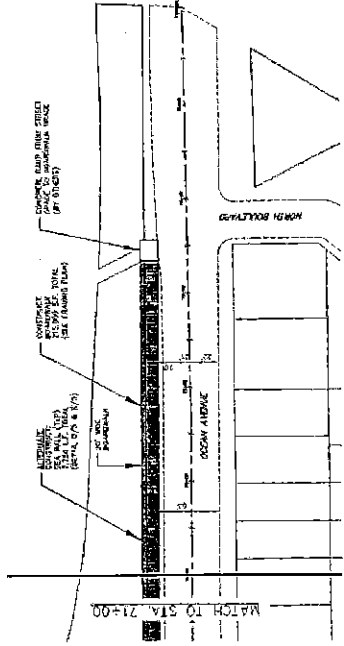
CONSTRUCTION PLAN
BELMONT BOARDWALK
RECONSTRUCTION PROJECT
OCEAN AVENUE
BOROUGH OF BELMONT

B.S.P.
BIRDWELL SERVICES GROUP
 A Division of
PAUL CALABRESE, P.E.

DATE: 08/15/12
 DRAWN BY: J. J. [unreadable]
 CHECKED BY: [unreadable]
 PROJECT NO.: [unreadable]
 SHEET NO.: 2-5

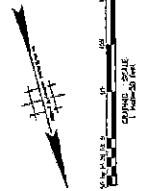


STA. 53+00 TO STA. 71+00



STA. 71+00 TO STA. 74+00

- GENERAL NOTES:**
1. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
 2. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION AND PRESERVATION OF ALL UTILITIES AND STRUCTURES TO REMAIN.
 4. THE CONTRACTOR SHALL MAINTAIN ADEQUATE TRAFFIC CONTROL THROUGHOUT THE CONSTRUCTION PERIOD.
 5. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 6. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 7. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 8. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 9. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 10. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 11. THE CONTRACTOR SHALL MAINTAIN ADEQUATE ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.

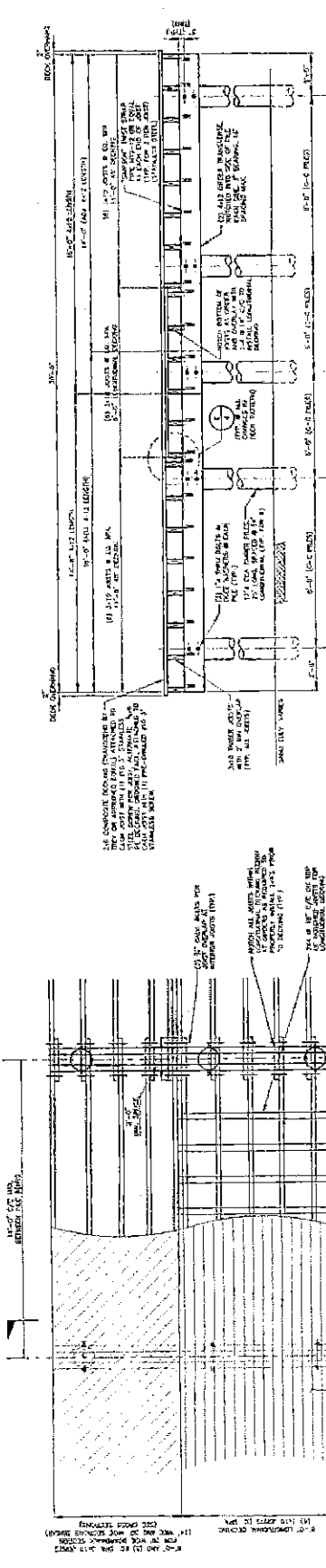


HIRSHALL SERVICES GROUP
 CONSULTING ENGINEERS & ARCHITECTS

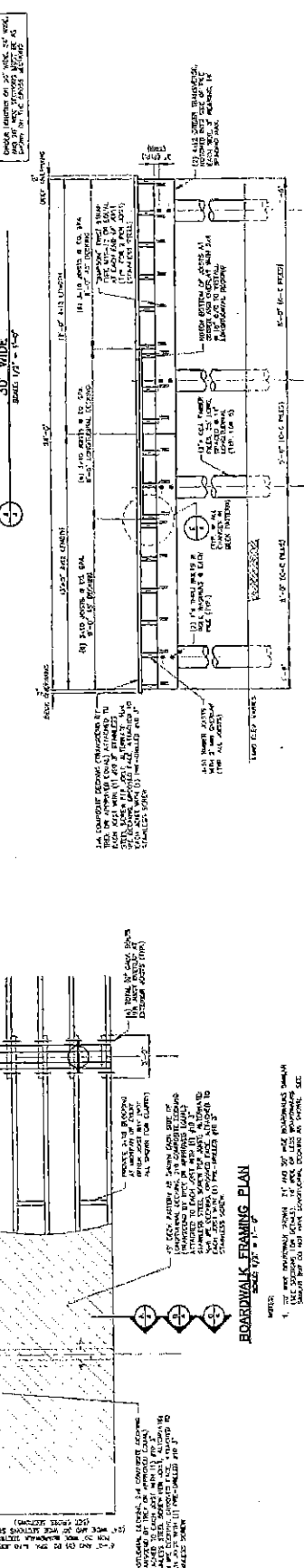
Paul Calabrese, P.E.
 PAUL CALABRESE, P.E.
 LICENSE NO. 118472

CONSTRUCTION PLAN
 BELMAR BOARDWALK
 RECONSTRUCTION PROJECT
 OCEAN AVENUE
 BOROUGH OF BELMAR

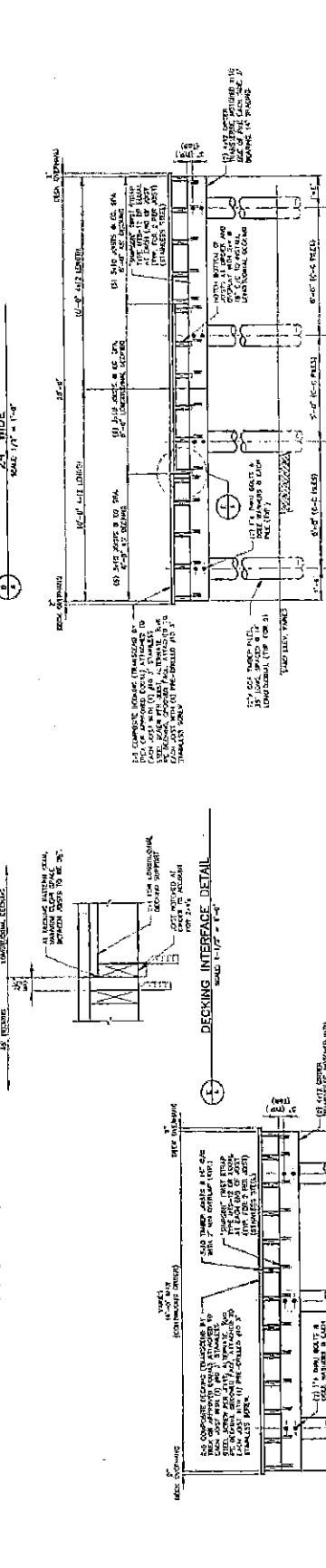
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 SCALE: AS SHOWN
 SHEET NO. 3 OF 6



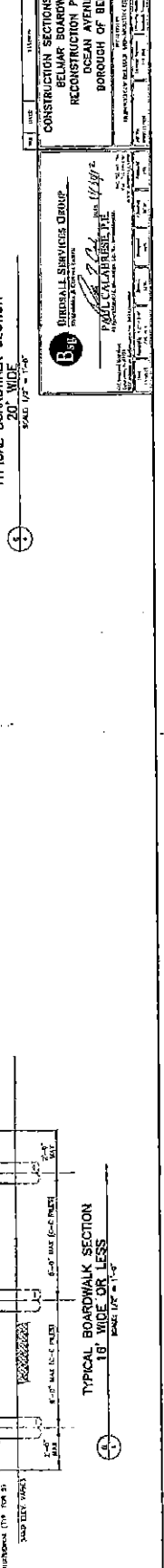
BOARDWALK FRAMING PLAN
SCALE: 1/2" = 1'-0"



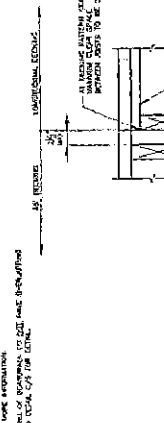
TYPICAL BOARDWALK SECTION 30' WIDE
SCALE: 1/2" = 1'-0"



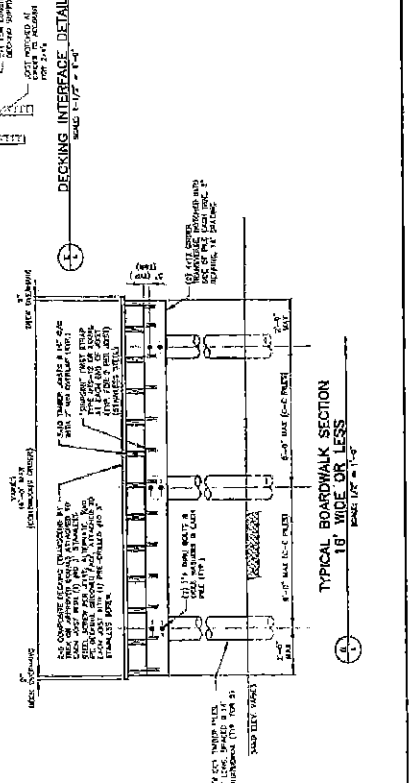
TYPICAL BOARDWALK SECTION 24' WIDE
SCALE: 1/2" = 1'-0"



TYPICAL BOARDWALK SECTION 20' WIDE
SCALE: 1/2" = 1'-0"



DECKING INTERFACE DETAIL
SCALE: 1/2" = 1'-0"



TYPICAL BOARDWALK SECTION 18' WIDE OR LESS
SCALE: 1/2" = 1'-0"

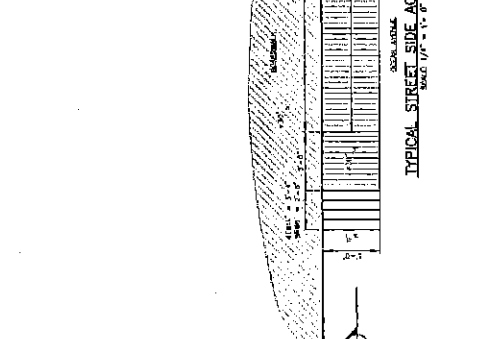
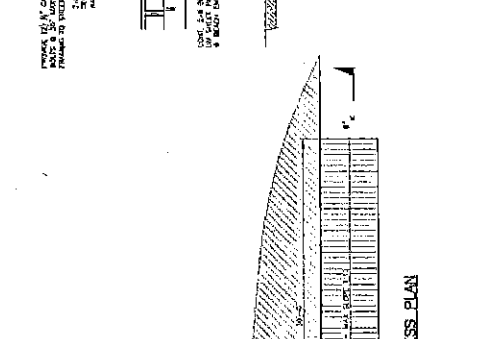
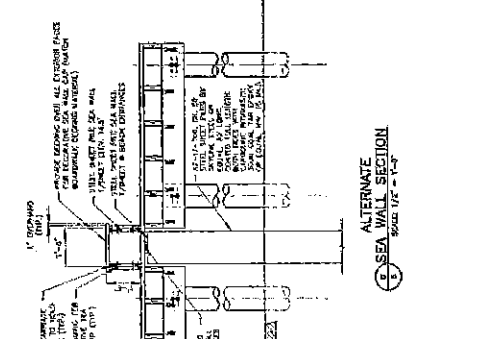
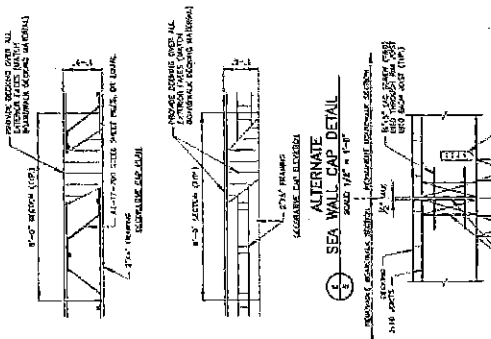
CONSTRUCTION SECTIONS & DETAILS
BELMAR BOARDWALK
RECONSTRUCTION PROJECT
OCEAN AVENUE
BOROUGH OF BELMAR

BRIDGEMAN SERVICES GROUP
PAUL CALABRESE, P.E.
1000 BELMONT AVENUE, SUITE 200
BELMAR, NJ 07718
TEL: 908.328.1100
WWW.BRIDGEMANSGROUP.COM

DATE: 11/15/17
DRAWN BY: [Name]
CHECKED BY: [Name]
SCALE: 1/2" = 1'-0"

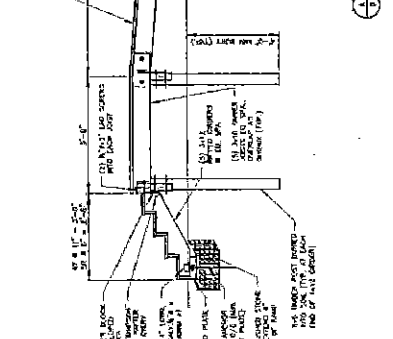
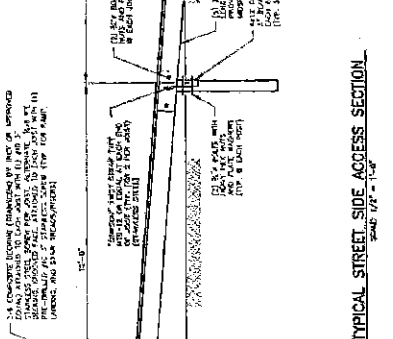
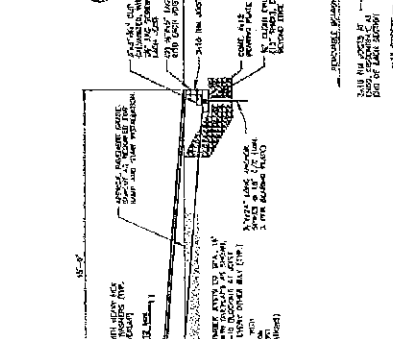
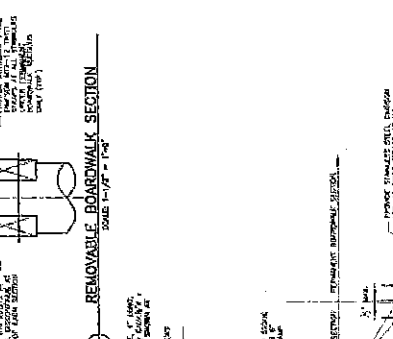
GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
4. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES.
5. ALL WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
6. THE CONTRACTOR SHALL MAINTAIN A SAFE WORKING ENVIRONMENT AT ALL TIMES.
7. ALL MATERIALS SHALL BE STORED AND HANDLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
8. THE CONTRACTOR SHALL MAINTAIN THE PROPOSED PAVEMENT IN PLACE AT ALL TIMES.
9. ALL WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
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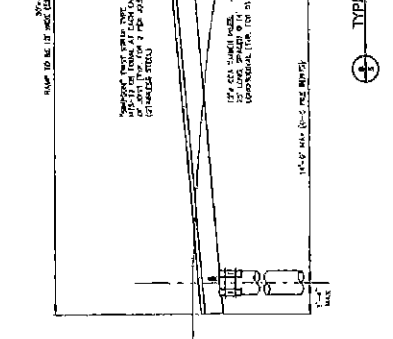
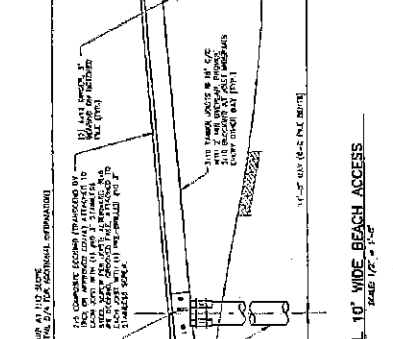
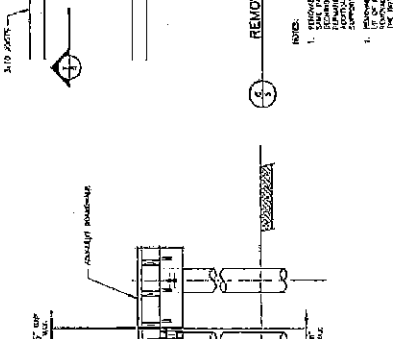
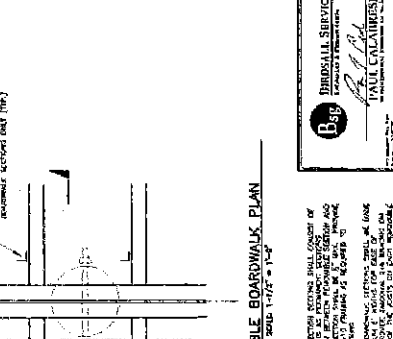
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NO.	DATE	REVISION
1	08/20/2024	ISSUED FOR PERMIT
2	08/20/2024	ISSUED FOR PERMIT
3	08/20/2024	ISSUED FOR PERMIT
4	08/20/2024	ISSUED FOR PERMIT
5	08/20/2024	ISSUED FOR PERMIT

CONSTRUCTION SECTIONS & DETAILS
RECONSTRUCTION PROJECT
OCEAN AVENUE
BOROUGH OF BELMAR

DRISCOLL SERVICES GROUP
 ENGINEERS & ARCHITECTS
 100 BELMONT AVENUE
 BELMAR, NJ 07718
 TEL: 908.328.1111
 FAX: 908.328.1112
 WWW.DRISCOLLSERVICESGROUP.COM

NOTE:
 1. REMOVABLE BOARDWALK SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
 2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

NOTE:
 1. TYPICAL STREET SIDE ACCESS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
 2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

NOTE:
 1. TYPICAL 10' WIDE BEACH ACCESS SECTION SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
 2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

NOTE:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
 2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

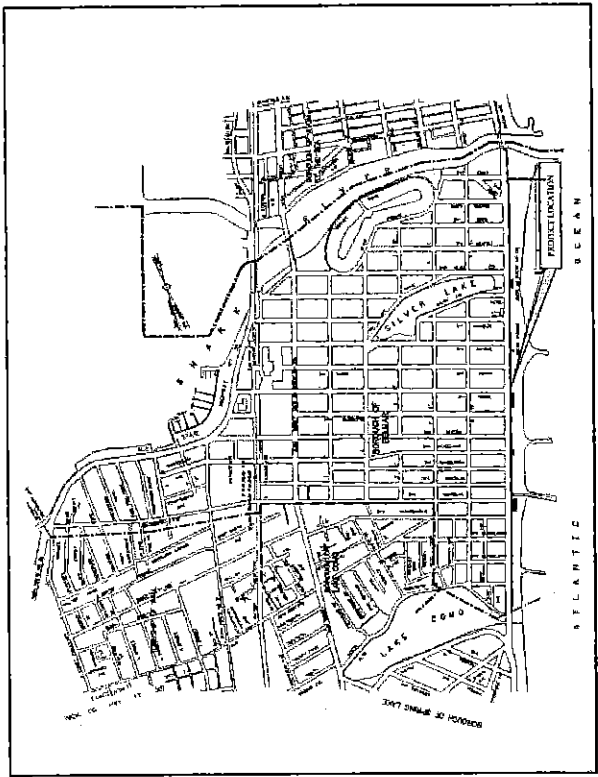
NOTE:
 1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION (DOT) AND THE FEDERAL HIGHWAY ADMINISTRATION (FHWA) MANUALS AND OTHER PUBLISHED DOCUMENTS.
 2. ALL MATERIALS AND METHODS SHALL BE APPROVED BY THE ENGINEER BEFORE CONSTRUCTION.

ELECTRICAL WORK FOR BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVENUE BOROUGH OF BELMAR MONMOUTH COUNTY, NEW JERSEY FEBRUARY 2013

EXHIBIT F
(8 Sheets)

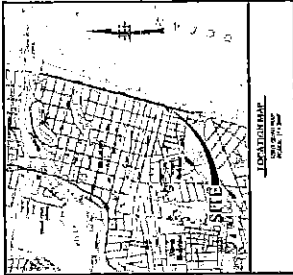
GOVERNING BODY	
MAYOR	MATTHEW BOBERTY
ADMINISTRATOR	COLLEEN CONNOLLY
BOROUGH COUNCIL	JAMES BIRAN CLAUDIA BIANCHI DANIEL MARGOLIS JONATHAN SOKOLAY
BOROUGH CLERK	APRIL CLAUDIUS

UTILITY CONTACTS	
AT&T	1200 BELL CENTER BLVD AT&T WORLDWIDE COMMUNICATIONS AT&T SERVICE CENTER
BELL	6700 BELL BLVD AT&T SERVICE CENTER
CITY OF BELMAR	CITY OF BELMAR 250 WASHINGTON ST BELMAR, NJ 08016
COASTAL STATES WATER COMPANY	1000 WEST 12TH ST ATLANTA, GA 30329
NEW JERSEY STATE WATER COMMISSION	200 WEST 2ND ST TRENTON, NJ 08646
NEW YORK STATE WATER COMPANY	1000 WEST 12TH ST ATLANTA, GA 30329
ST. LOUIS	1000 WEST 12TH ST ATLANTA, GA 30329
VERIZON	1000 WEST 12TH ST ATLANTA, GA 30329



NOTED BY CONTRACTOR

THE CONTRACTOR HAS REVIEWED THIS KEY MAP AND HAS IDENTIFIED THE PROJECT LOCATION AS SHOWN ON THE MAP. THE CONTRACTOR HAS NOTIFIED THE CITY OF BELMAR AND THE MONMOUTH COUNTY PLANNING BOARD OF THE PROJECT LOCATION.



INDEX OF SHEETS	
NO.	DESCRIPTION
1	TITLE SHEET
2	CONSTRUCTION PLAN - EDP1
3	ELECTRICAL BOARDWALK PLAN - EDP2
4	ELECTRICAL BOARDWALK PLAN - EDP3
5	ELECTRICAL BOARDWALK PLAN - EDP4
6	ELECTRICAL BOARDWALK PLAN - EDP5
7	ELECTRICAL SPECIFICATIONS

- NOTES:**
- THE CONTRACTOR SHALL VERIFY THE LOCATION OF ALL UTILITIES AND SHALL BE RESPONSIBLE FOR ANY DAMAGE TO UTILITIES CAUSED BY HIS OPERATIONS. THE CONTRACTOR SHALL NOTIFY THE UTILITY COMPANIES OF ANY PLANNED WORK THAT MAY AFFECT THEIR UTILITIES AT LEAST 14 DAYS BEFORE THE START OF WORK.
 - ALL UTILITIES SHALL BE PROTECTED AND DEEPLY REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
 - THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
 - THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
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TITLE SHEET	DATE: / /	SCALE: / /	PROJECT NO.: / /
BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVENUE BOROUGH OF BELMAR			

REGISTRATION

PROFESSIONAL ENGINEER

THE PROFESSIONAL ENGINEER'S BOARD OF NEW JERSEY

MEMBER NO. / /

BIRDSONG SERVICES GROUP

REGISTERED PROFESSIONAL ENGINEER

PAUL CALABRESE, P.E.

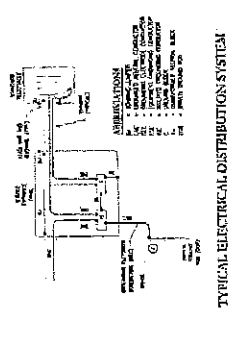
DATE: / /

ELECTRICAL NOTES

- 1. ALL WORK TO BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL CITY AND STATE ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE LOCAL AUTHORITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE LOCAL AUTHORITIES.

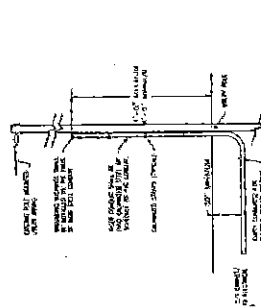
SYMBOL LIST TABLE with columns: SYMBOLOGY, SYMBOL, DESCRIPTION, NOTE REF.

WIRING DEVICE LEGEND TABLE with columns: PART SYMBOL, DESCRIPTION, NOTE REF.

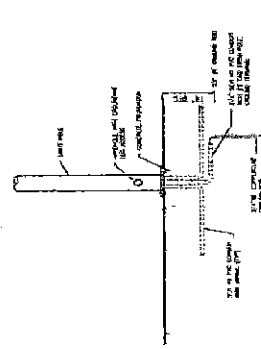


TYPICAL ELECTRICAL DISTRIBUTION SYSTEM

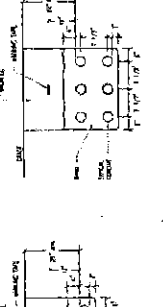
1. ALL WORK SHALL BE DONE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL CITY AND STATE ORDINANCES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS FROM THE LOCAL AUTHORITIES.



TYPICAL TYPE "AA" LIGHT FIXTURE/POLE INSTALLATION DETAIL



TYPICAL UNDERGROUND BRANCH CIRCUIT CONDUIT AND WIRING INSTALLATION DETAIL



TYPICAL ELECTRIC DUST DETAIL

TABLE 1: ELECTRICAL SYMBOL LIST with columns: SYMBOLOGY, SYMBOL, DESCRIPTION, NOTE REF.

TABLE 2: WIRING DEVICE LEGEND with columns: PART SYMBOL, DESCRIPTION, NOTE REF.

TABLE 3: ELECTRICAL SYMBOL LIST with columns: SYMBOLOGY, SYMBOL, DESCRIPTION, NOTE REF.

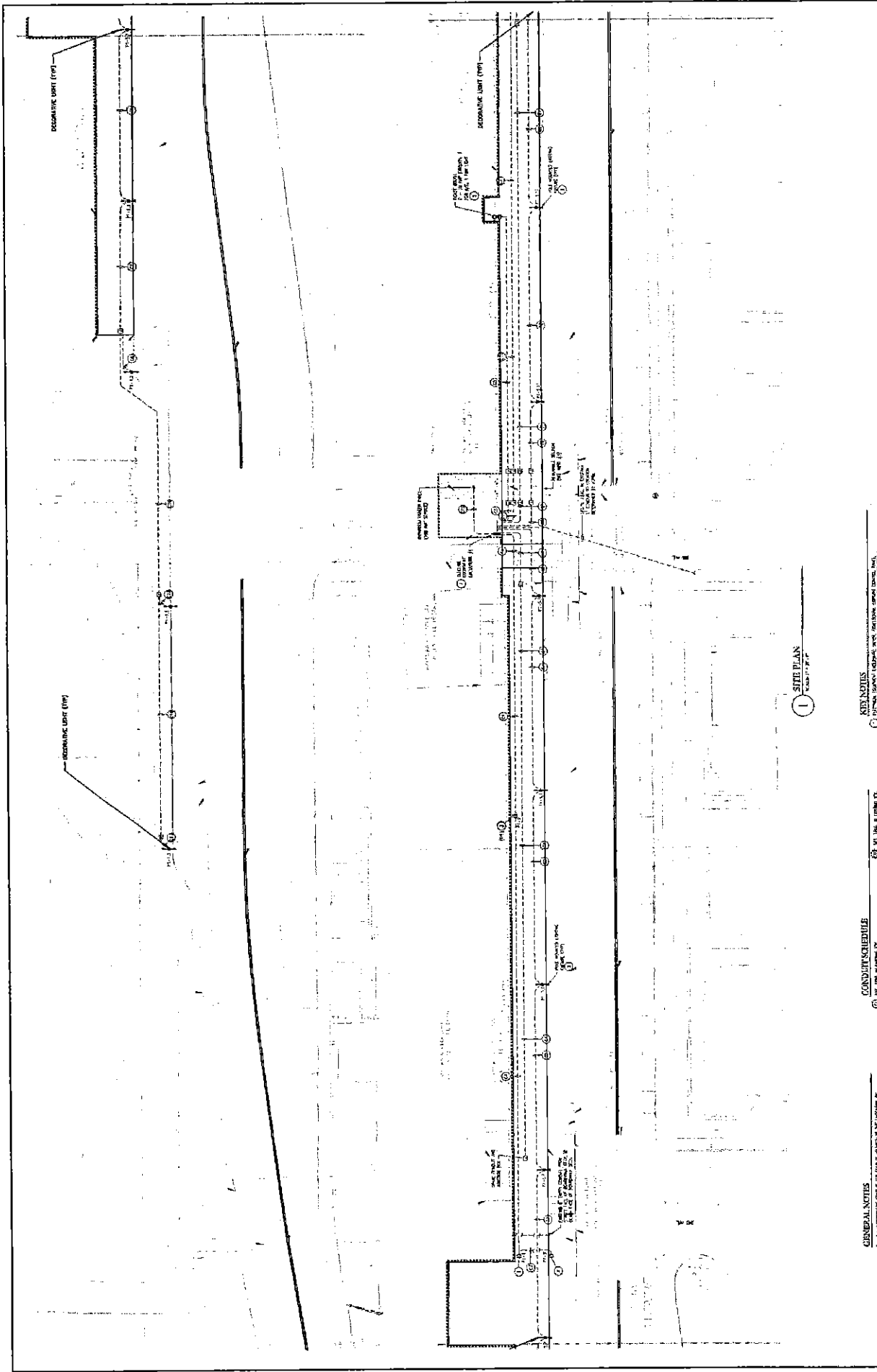
TABLE 4: WIRING DEVICE LEGEND with columns: PART SYMBOL, DESCRIPTION, NOTE REF.

TABLE 5: ELECTRICAL SYMBOL LIST with columns: SYMBOLOGY, SYMBOL, DESCRIPTION, NOTE REF.

TABLE 6: WIRING DEVICE LEGEND with columns: PART SYMBOL, DESCRIPTION, NOTE REF.

ELECTRICAL SYMBOLS, DETAILS & NOTES BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVE BOROUGH OF BELMAR

PROJECT INFORMATION: BELMAR BOARDWALK RECONSTRUCTION PROJECT, OCEAN AVE, BOROUGH OF BELMAR. Includes contact information for the electrical contractor.



1 SIDE PLAN
Scale: 1" = 10'

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
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10. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).

CONDUIT SCHEDULE

- | NO. | TYPE | SIZE | LENGTH | DATE |
|-----|---------|---------|--------|----------|
| 1 | 1/2" | 1/2" | 100' | 10/10/10 |
| 2 | 3/4" | 3/4" | 100' | 10/10/10 |
| 3 | 1" | 1" | 100' | 10/10/10 |
| 4 | 1 1/2" | 1 1/2" | 100' | 10/10/10 |
| 5 | 2" | 2" | 100' | 10/10/10 |
| 6 | 2 1/2" | 2 1/2" | 100' | 10/10/10 |
| 7 | 3" | 3" | 100' | 10/10/10 |
| 8 | 3 1/2" | 3 1/2" | 100' | 10/10/10 |
| 9 | 4" | 4" | 100' | 10/10/10 |
| 10 | 4 1/2" | 4 1/2" | 100' | 10/10/10 |
| 11 | 5" | 5" | 100' | 10/10/10 |
| 12 | 5 1/2" | 5 1/2" | 100' | 10/10/10 |
| 13 | 6" | 6" | 100' | 10/10/10 |
| 14 | 6 1/2" | 6 1/2" | 100' | 10/10/10 |
| 15 | 7" | 7" | 100' | 10/10/10 |
| 16 | 7 1/2" | 7 1/2" | 100' | 10/10/10 |
| 17 | 8" | 8" | 100' | 10/10/10 |
| 18 | 8 1/2" | 8 1/2" | 100' | 10/10/10 |
| 19 | 9" | 9" | 100' | 10/10/10 |
| 20 | 9 1/2" | 9 1/2" | 100' | 10/10/10 |
| 21 | 10" | 10" | 100' | 10/10/10 |
| 22 | 10 1/2" | 10 1/2" | 100' | 10/10/10 |
| 23 | 11" | 11" | 100' | 10/10/10 |
| 24 | 11 1/2" | 11 1/2" | 100' | 10/10/10 |
| 25 | 12" | 12" | 100' | 10/10/10 |
| 26 | 12 1/2" | 12 1/2" | 100' | 10/10/10 |
| 27 | 13" | 13" | 100' | 10/10/10 |
| 28 | 13 1/2" | 13 1/2" | 100' | 10/10/10 |
| 29 | 14" | 14" | 100' | 10/10/10 |
| 30 | 14 1/2" | 14 1/2" | 100' | 10/10/10 |
| 31 | 15" | 15" | 100' | 10/10/10 |
| 32 | 15 1/2" | 15 1/2" | 100' | 10/10/10 |
| 33 | 16" | 16" | 100' | 10/10/10 |
| 34 | 16 1/2" | 16 1/2" | 100' | 10/10/10 |
| 35 | 17" | 17" | 100' | 10/10/10 |
| 36 | 17 1/2" | 17 1/2" | 100' | 10/10/10 |
| 37 | 18" | 18" | 100' | 10/10/10 |
| 38 | 18 1/2" | 18 1/2" | 100' | 10/10/10 |
| 39 | 19" | 19" | 100' | 10/10/10 |
| 40 | 19 1/2" | 19 1/2" | 100' | 10/10/10 |
| 41 | 20" | 20" | 100' | 10/10/10 |
| 42 | 20 1/2" | 20 1/2" | 100' | 10/10/10 |
| 43 | 21" | 21" | 100' | 10/10/10 |
| 44 | 21 1/2" | 21 1/2" | 100' | 10/10/10 |
| 45 | 22" | 22" | 100' | 10/10/10 |
| 46 | 22 1/2" | 22 1/2" | 100' | 10/10/10 |
| 47 | 23" | 23" | 100' | 10/10/10 |
| 48 | 23 1/2" | 23 1/2" | 100' | 10/10/10 |
| 49 | 24" | 24" | 100' | 10/10/10 |
| 50 | 24 1/2" | 24 1/2" | 100' | 10/10/10 |
| 51 | 25" | 25" | 100' | 10/10/10 |
| 52 | 25 1/2" | 25 1/2" | 100' | 10/10/10 |
| 53 | 26" | 26" | 100' | 10/10/10 |
| 54 | 26 1/2" | 26 1/2" | 100' | 10/10/10 |
| 55 | 27" | 27" | 100' | 10/10/10 |
| 56 | 27 1/2" | 27 1/2" | 100' | 10/10/10 |
| 57 | 28" | 28" | 100' | 10/10/10 |
| 58 | 28 1/2" | 28 1/2" | 100' | 10/10/10 |
| 59 | 29" | 29" | 100' | 10/10/10 |
| 60 | 29 1/2" | 29 1/2" | 100' | 10/10/10 |
| 61 | 30" | 30" | 100' | 10/10/10 |
| 62 | 30 1/2" | 30 1/2" | 100' | 10/10/10 |
| 63 | 31" | 31" | 100' | 10/10/10 |
| 64 | 31 1/2" | 31 1/2" | 100' | 10/10/10 |
| 65 | 32" | 32" | 100' | 10/10/10 |
| 66 | 32 1/2" | 32 1/2" | 100' | 10/10/10 |
| 67 | 33" | 33" | 100' | 10/10/10 |
| 68 | 33 1/2" | 33 1/2" | 100' | 10/10/10 |
| 69 | 34" | 34" | 100' | 10/10/10 |
| 70 | 34 1/2" | 34 1/2" | 100' | 10/10/10 |
| 71 | 35" | 35" | 100' | 10/10/10 |
| 72 | 35 1/2" | 35 1/2" | 100' | 10/10/10 |
| 73 | 36" | 36" | 100' | 10/10/10 |
| 74 | 36 1/2" | 36 1/2" | 100' | 10/10/10 |
| 75 | 37" | 37" | 100' | 10/10/10 |
| 76 | 37 1/2" | 37 1/2" | 100' | 10/10/10 |
| 77 | 38" | 38" | 100' | 10/10/10 |
| 78 | 38 1/2" | 38 1/2" | 100' | 10/10/10 |
| 79 | 39" | 39" | 100' | 10/10/10 |
| 80 | 39 1/2" | 39 1/2" | 100' | 10/10/10 |
| 81 | 40" | 40" | 100' | 10/10/10 |
| 82 | 40 1/2" | 40 1/2" | 100' | 10/10/10 |
| 83 | 41" | 41" | 100' | 10/10/10 |
| 84 | 41 1/2" | 41 1/2" | 100' | 10/10/10 |
| 85 | 42" | 42" | 100' | 10/10/10 |
| 86 | 42 1/2" | 42 1/2" | 100' | 10/10/10 |
| 87 | 43" | 43" | 100' | 10/10/10 |
| 88 | 43 1/2" | 43 1/2" | 100' | 10/10/10 |
| 89 | 44" | 44" | 100' | 10/10/10 |
| 90 | 44 1/2" | 44 1/2" | 100' | 10/10/10 |
| 91 | 45" | 45" | 100' | 10/10/10 |
| 92 | 45 1/2" | 45 1/2" | 100' | 10/10/10 |
| 93 | 46" | 46" | 100' | 10/10/10 |
| 94 | 46 1/2" | 46 1/2" | 100' | 10/10/10 |
| 95 | 47" | 47" | 100' | 10/10/10 |
| 96 | 47 1/2" | 47 1/2" | 100' | 10/10/10 |
| 97 | 48" | 48" | 100' | 10/10/10 |
| 98 | 48 1/2" | 48 1/2" | 100' | 10/10/10 |
| 99 | 49" | 49" | 100' | 10/10/10 |
| 100 | 49 1/2" | 49 1/2" | 100' | 10/10/10 |



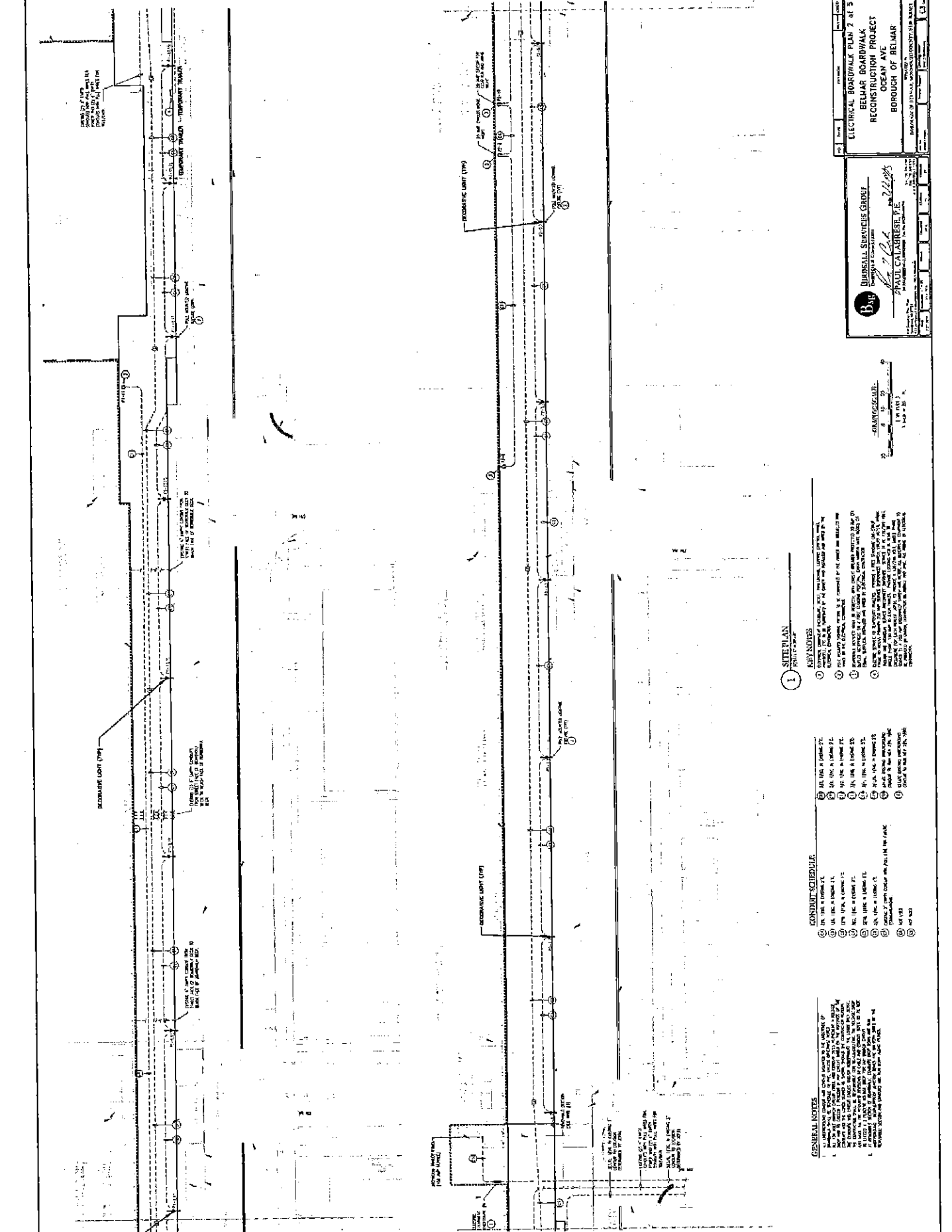
DESIGN SERVICES GROUP
INCORPORATED
1000 MARKET STREET, SUITE 200
PHILADELPHIA, PA 19102
TEL: 215-597-1234
FAX: 215-597-5678
WWW.DSGROUP.COM

ELECTRICAL BASISWALK PLAN
RECORDATION PROJECT
OCEAN AVE
BOROUGH OF BELAIR
DEPT. OF PUBLIC WORKS
1000 MARKET STREET, SUITE 200
PHILADELPHIA, PA 19102
TEL: 215-597-1234
FAX: 215-597-5678
WWW.DSGROUP.COM

BRADSHAW SERVICES GROUP
 ENGINEERS & ARCHITECTS
 300 N. 10TH ST.
 PHILADELPHIA, PA 19107
 P. 215.261.2100
 F. 215.261.2101
 WWW.BRADSHAWSG.COM

Paul Calabrese, P.E.
 PAUL CALABRESE, P.E.
 PROJECT ENGINEER

DATE: 05/14/2013
 TIME: 10:00 AM
 DRAWING NO.: 13-0001-07



1 SITE PLAN
 PART 1 OF 8

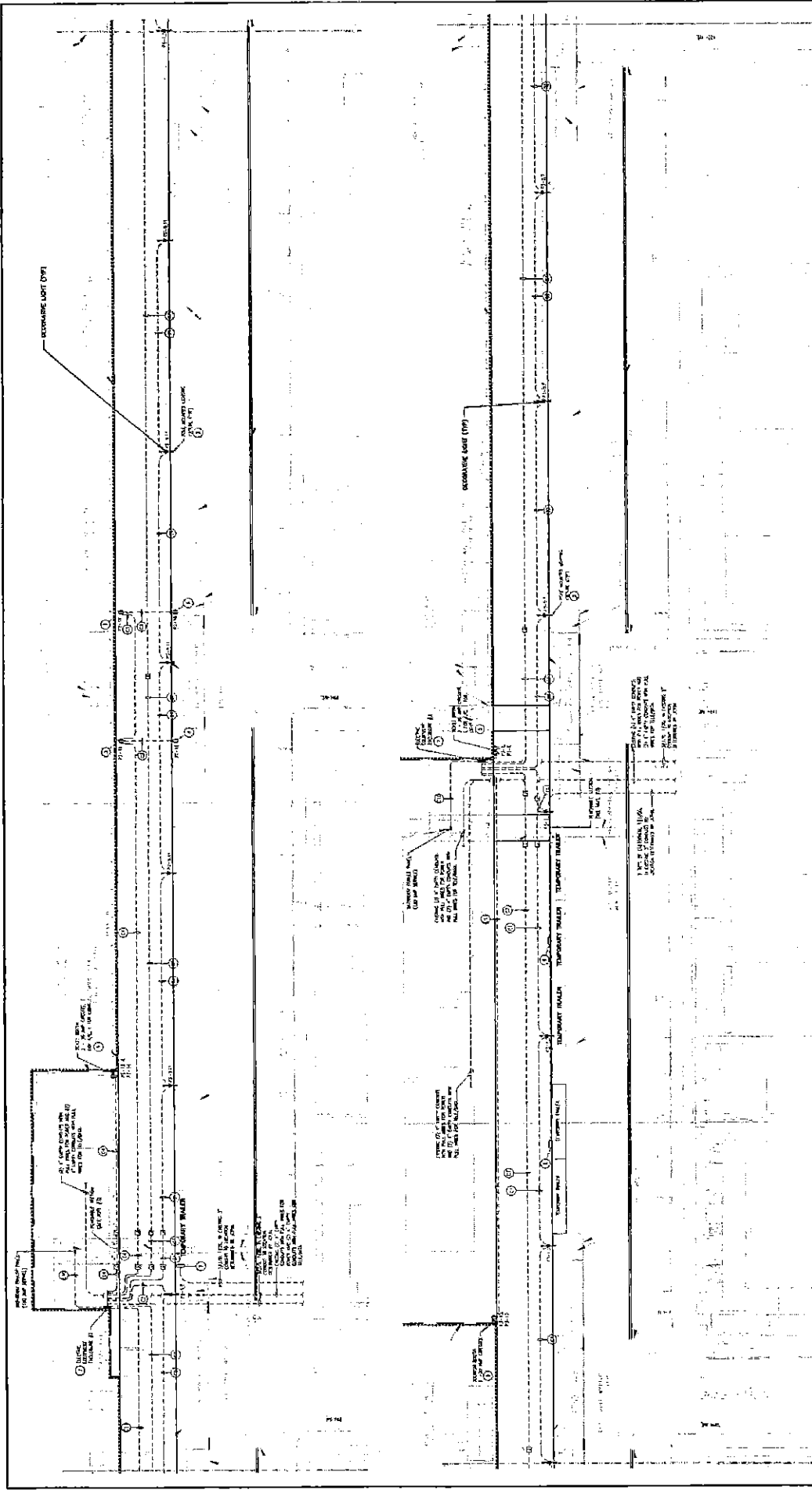
- REVISIONS**
- ① CORRECTED FOR A NUMBER OF 14' SPACING AND 15' SPACING FOR ALL THE BOARDWALK LIGHTS.
 - ② CORRECTED FOR A NUMBER OF 14' SPACING AND 15' SPACING FOR ALL THE BOARDWALK LIGHTS.
 - ③ CORRECTED FOR A NUMBER OF 14' SPACING AND 15' SPACING FOR ALL THE BOARDWALK LIGHTS.
 - ④ CORRECTED FOR A NUMBER OF 14' SPACING AND 15' SPACING FOR ALL THE BOARDWALK LIGHTS.
 - ⑤ CORRECTED FOR A NUMBER OF 14' SPACING AND 15' SPACING FOR ALL THE BOARDWALK LIGHTS.

CONDUIT SCHEDULE

- ① 1/2" EMT
- ② 1/2" EMT
- ③ 1/2" EMT
- ④ 1/2" EMT
- ⑤ 1/2" EMT
- ⑥ 1/2" EMT
- ⑦ 1/2" EMT
- ⑧ 1/2" EMT

GENERAL NOTES

- ① ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
- ② ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
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1 SITE PLAN
SCALE: 1/4" = 1' 0"

- NOTES**
1. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND ALL LOCAL ORDINANCES.
 2. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
 3. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL ELECTRICAL INSPECTOR.
 4. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL FIRE DEPARTMENT.
 5. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL HEALTH DEPARTMENT.
 6. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL POLICE DEPARTMENT.
 7. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL PLANNING BOARD.
 8. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL ZONING BOARD.
 9. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL HISTORIC COMMISSION.
 10. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL LANDmarks COMMISSION.
 11. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL ARCHITECTURAL BOARD.
 12. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL ARTS AND CULTURAL COMMISSION.
 13. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL BOARD OF EDUCATION.
 14. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL BOARD OF HEALTH.
 15. ALL ELECTRICAL WORK SHALL BE SUBJECT TO INSPECTION BY THE LOCAL BOARD OF SOCIAL SERVICES.

- CONCRETE SCHEDULE**
1. 12" THICK CONCRETE
 2. 18" THICK CONCRETE
 3. 24" THICK CONCRETE
 4. 30" THICK CONCRETE
 5. 36" THICK CONCRETE
 6. 42" THICK CONCRETE
 7. 48" THICK CONCRETE
 8. 54" THICK CONCRETE
 9. 60" THICK CONCRETE
 10. 66" THICK CONCRETE
 11. 72" THICK CONCRETE
 12. 78" THICK CONCRETE
 13. 84" THICK CONCRETE
 14. 90" THICK CONCRETE
 15. 96" THICK CONCRETE

- GENERAL NOTES**
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BURSALL SERVICES GROUP
ELECTRICAL BOARDWALK RECONSTRUCTION PROJECT
OCEAN AVE
BOROUGH OF BELMAR

PAUL CALABRESE, P.E.

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

CONTRACTOR

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

OWNER

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

DESIGNER

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

REVISIONS

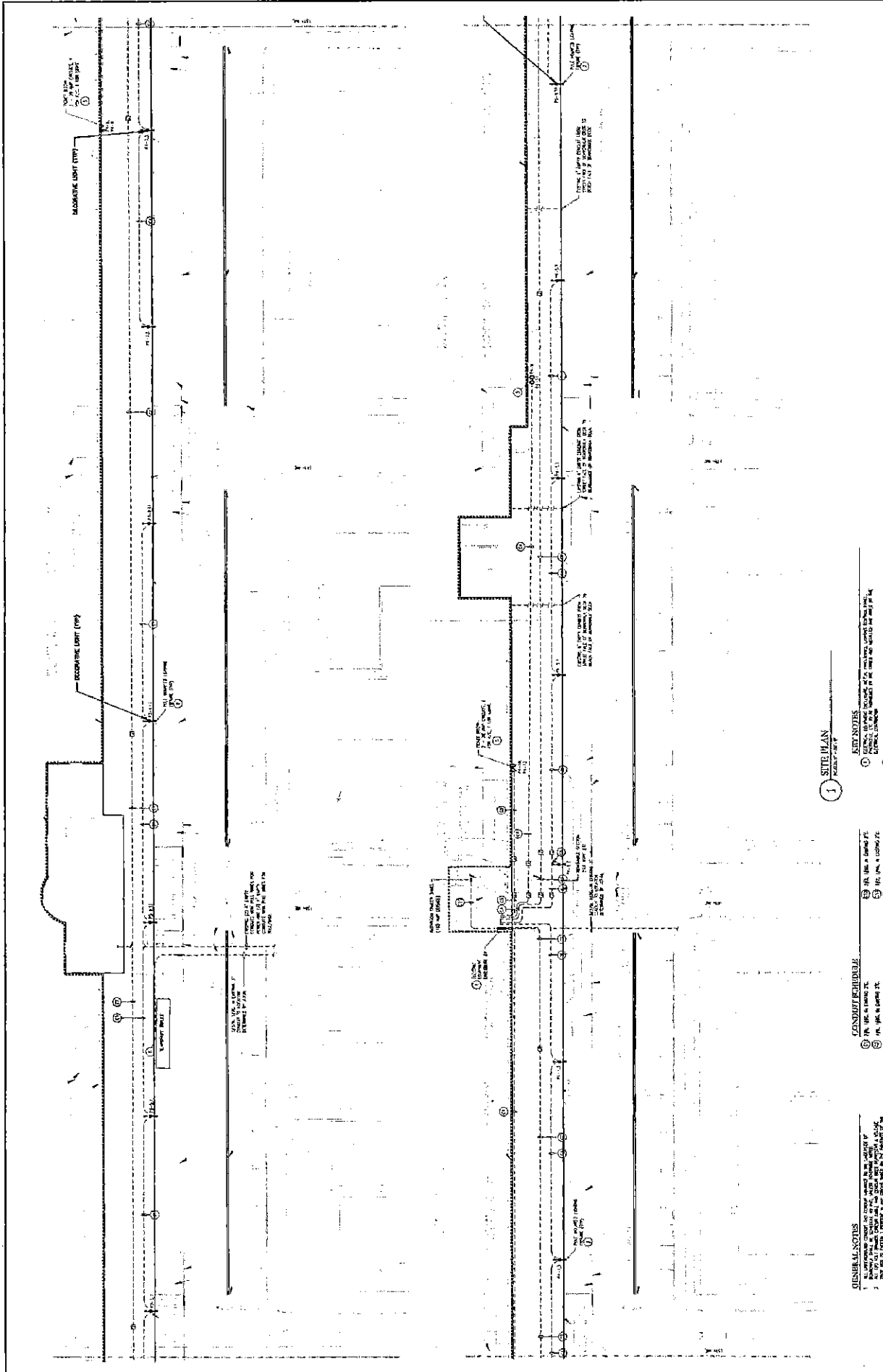
DATE: 10/15/11
SCALE: 1/4" = 1' 0"

PROJECT INFORMATION

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

APPENDICES

DATE: 10/15/11
SCALE: 1/4" = 1' 0"

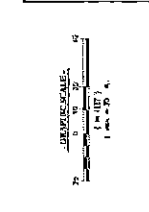


DATE	NO.	BY	CHKD.	APP.
ELECTRICAL BOARDWALK PLAN 6 OF 5 BELMAR BOARDWALK RECONSTRUCTION PROJECT OCEAN AVE BOROUGH OF BELMAR				

BIRSBALL SERVICES GROUP
PLANNING & CONSULTING

Paul Lalor
PAUL LALORRE, P.E.
Professional Engineer No. 104,348
State of New Jersey

1000 BELMONT AVENUE, SUITE 200
MORRISTOWN, NJ 07960
TEL: 973-875-1100
FAX: 973-875-1101
WWW.BIRSBALL.COM



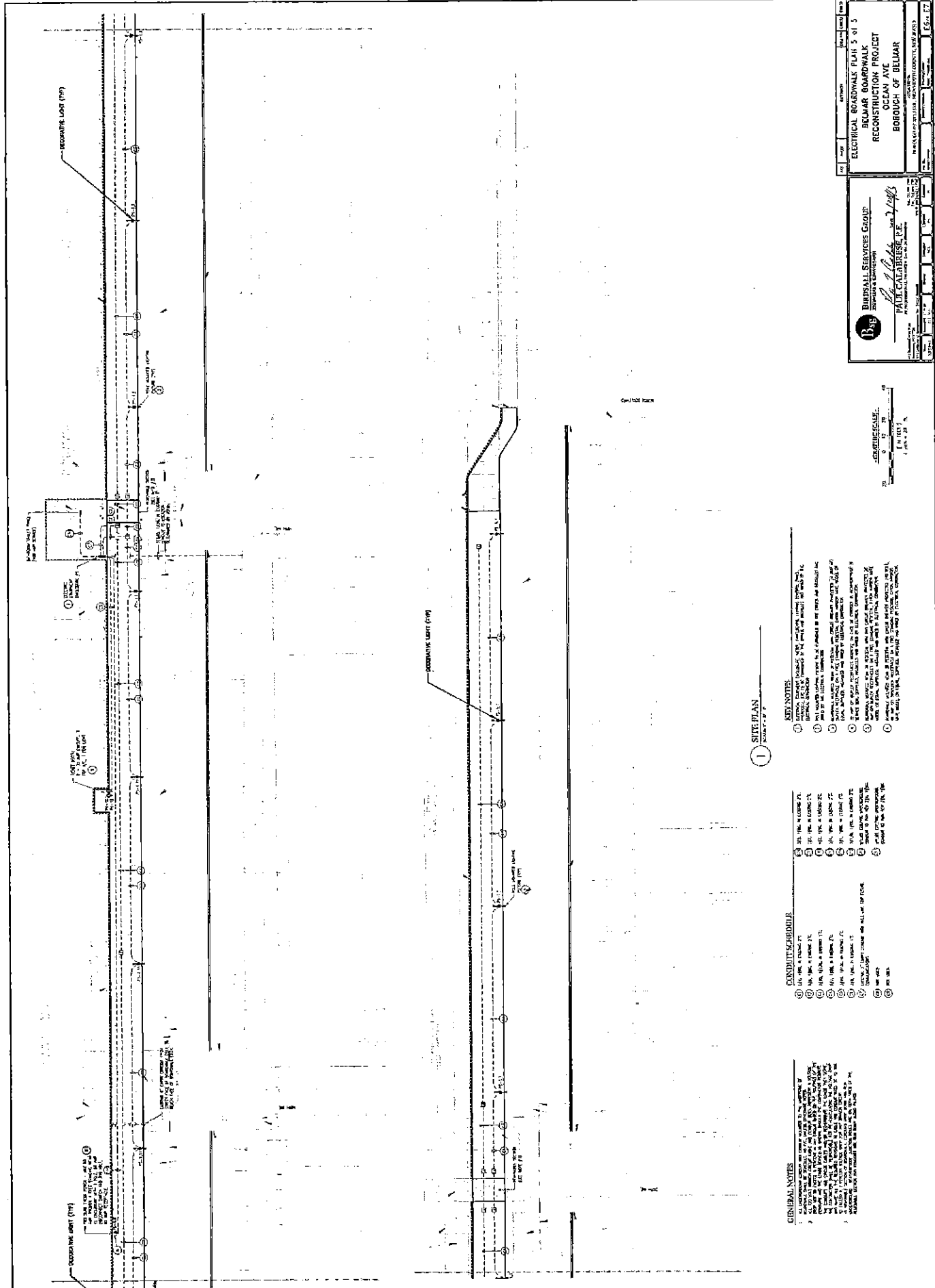
1 SITE PLAN
REVISION: 01/17/14

- KEY NOTES**
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
 2. ALL WORK SHALL BE IN ACCORDANCE WITH THE LATEST EDITIONS OF THE NATIONAL ELECTRICAL CODE (NEC) AND THE NATIONAL FIRE ALARM AND SIGNAL CODE (NFPA 72).
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- CONDUIT SCHEDULE**
- | | |
|-----------------------------|-----------------------------|
| 1. 1/2" RIGID PVC CONDUIT | 1. 1/2" RIGID PVC CONDUIT |
| 2. 3/4" RIGID PVC CONDUIT | 2. 3/4" RIGID PVC CONDUIT |
| 3. 1" RIGID PVC CONDUIT | 3. 1" RIGID PVC CONDUIT |
| 4. 1 1/2" RIGID PVC CONDUIT | 4. 1 1/2" RIGID PVC CONDUIT |
| 5. 2" RIGID PVC CONDUIT | 5. 2" RIGID PVC CONDUIT |
| 6. 3" RIGID PVC CONDUIT | 6. 3" RIGID PVC CONDUIT |
| 7. 4" RIGID PVC CONDUIT | 7. 4" RIGID PVC CONDUIT |
| 8. 6" RIGID PVC CONDUIT | 8. 6" RIGID PVC CONDUIT |
| 9. 8" RIGID PVC CONDUIT | 9. 8" RIGID PVC CONDUIT |
| 10. 10" RIGID PVC CONDUIT | 10. 10" RIGID PVC CONDUIT |

GENERAL NOTES

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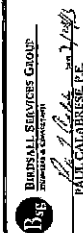
1 SITE PLAN
Sheet 3 of 5

- #### GENERAL NOTES
1. ALL ELECTRICAL WORK SHALL BE PERFORMED BY A LICENSED ELECTRICIAN.
 2. ALL ELECTRICAL WORK SHALL BE IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE (NEC) AND THE NEW JERSEY ELECTRICAL CODE (NJEC).
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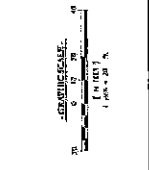
- #### CONDUIT SCHEDULE
- | No. | Description | Material | Quantity |
|-----|-------------|------------|----------|
| 1 | 1/2" EMT | 1/2" EMT | 100 |
| 2 | 3/4" EMT | 3/4" EMT | 50 |
| 3 | 1" EMT | 1" EMT | 20 |
| 4 | 1 1/2" EMT | 1 1/2" EMT | 10 |
| 5 | 2" EMT | 2" EMT | 5 |
| 6 | 2 1/2" EMT | 2 1/2" EMT | 5 |
| 7 | 3" EMT | 3" EMT | 5 |
| 8 | 3 1/2" EMT | 3 1/2" EMT | 5 |
| 9 | 4" EMT | 4" EMT | 5 |
| 10 | 4 1/2" EMT | 4 1/2" EMT | 5 |

- #### KEY NOTES
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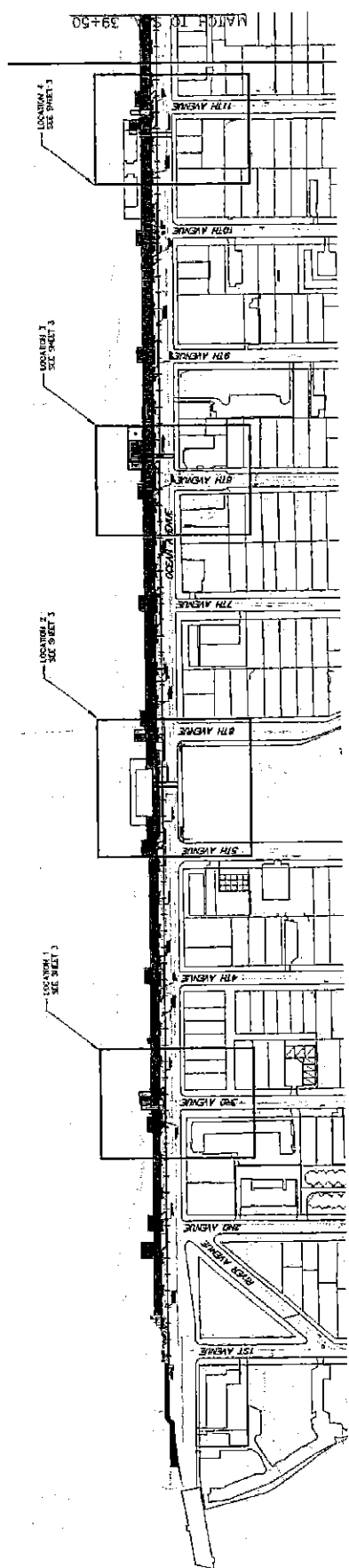
BIRDSONG SERVICES GROUP
REGISTERED PROFESSIONAL ENGINEERS AND ARCHITECTS


PAUL CALABRESE, P.E.
 License No. 13-2424-40

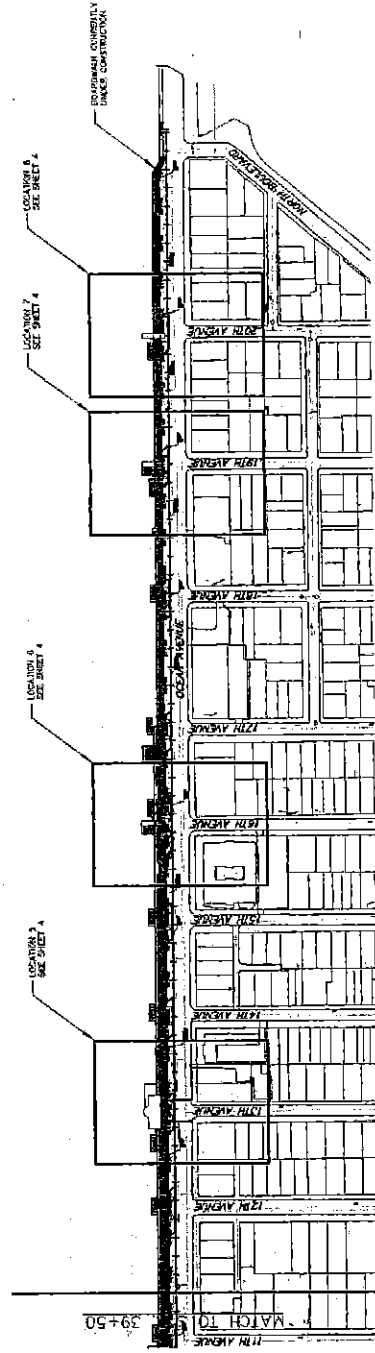
ELECTRICAL BOARDWALK PLAN 3 OF 5
BELLAR BOARDWALK RECONSTRUCTION PROJECT
OCEAN AVE. BOROUGH OF BELLAR



PROJECT: ELECTRICAL BOARDWALK PLAN 3 OF 5 CLIENT: BELLAR BOARDWALK RECONSTRUCTION PROJECT LOCATION: OCEAN AVE. BOROUGH OF BELLAR	DRAWING NO.: 18-001 SHEET NO.: 3 OF 5 DATE: 07/2018
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STA. 0+00 TO STA. 39+50



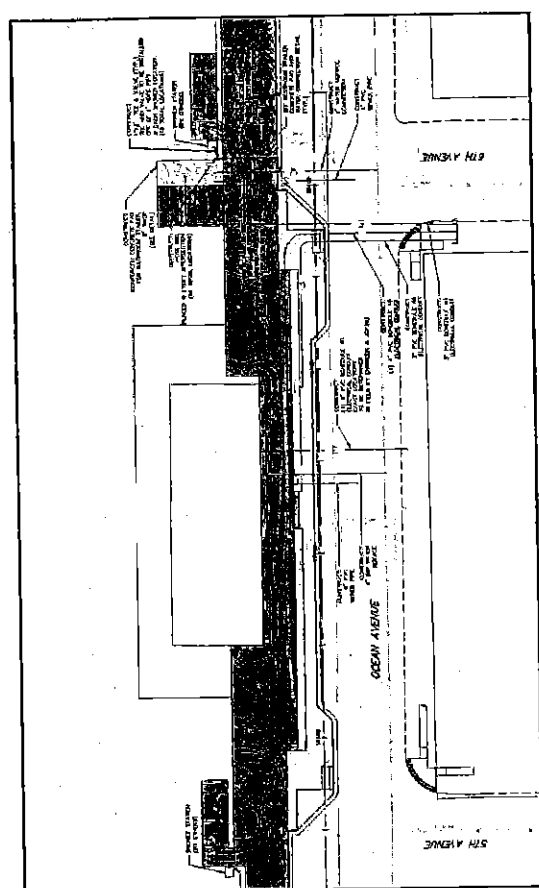
STA. 39+50 TO STA. 70+19



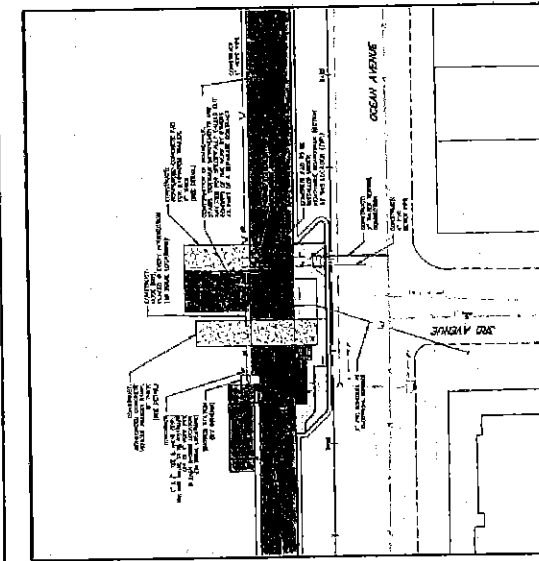
BIRDSALL SERVICES GROUP ENGINEERS & ARCHITECTS		OVERALL PLAN UTILITY SERVICES & CONCRETE IMPROVEMENTS FOR BOARDWALK OCEAN AVENUE BOROUGH OF BELMAR	
1000 CALAVERAS, P.O. BOX 1000 BELMAR, N.J. 08016 TEL: 856-341-1111 FAX: 856-341-1112 WWW.BIRDSALLSG.COM		PROJECT NO. 15-001 SHEET NO. 2-6 DATE: 11/11/15	

GENERAL NOTES

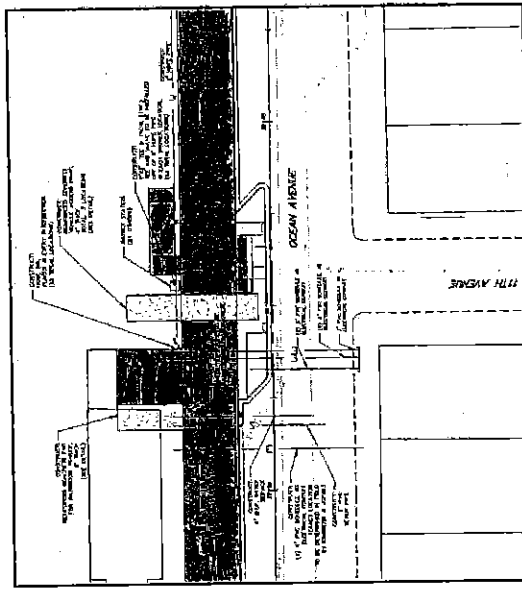
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE SPECIFICATIONS OF THE NEW YORK STATE DEPARTMENT OF TRANSPORTATION AND CONSTRUCTION, LATEST EDITION, AND THE STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, LATEST EDITION.
2. ALL MATERIALS SHALL BE OF THE BEST QUALITY AVAILABLE AND SHALL BE SUBJECT TO INSPECTION AND TESTING BY THE ENGINEER.
3. ALL WORK SHALL BE COMPLETED WITHIN THE SPECIFIED TIME FRAME.
4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND APPROVALS FROM THE APPROPRIATE AGENCIES.
5. THE CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AND UTILITIES AT ALL TIMES.
6. ALL UTILITIES SHALL BE PROTECTED AND DEEPER THAN THE ORIGINAL GRADE.
7. ALL EXCAVATIONS SHALL BE PROPERLY SHORED AND BRACED.
8. ALL FOUNDATIONS SHALL BE CONSTRUCTED TO THE DEPTH AND WIDTH SPECIFIED.
9. ALL STRUCTURES SHALL BE CONSTRUCTED WITH REINFORCED CONCRETE.
10. ALL WORK SHALL BE COMPLETED TO THE SATISFACTION OF THE ENGINEER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF ALL EXISTING UTILITIES AND STRUCTURES.
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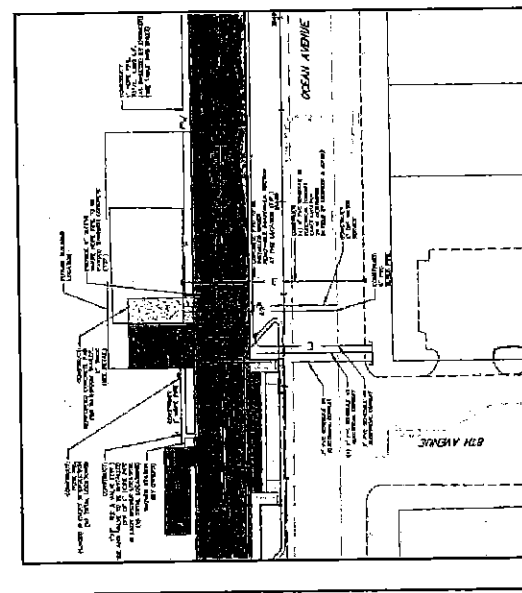
2. OCEAN AVENUE BETWEEN 5TH AVENUE & 6TH AVENUE
SCALE 1"=30'



1. OCEAN AVENUE & 3RD AVENUE
SCALE 1"=30'



4. OCEAN AVENUE & 11TH AVENUE
SCALE 1"=30'



3. OCEAN AVENUE & 8TH AVENUE
SCALE 1"=30'

ANNUAL AVERAGE OF 24-HOUR MEAN WIND VELOCITY

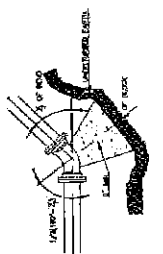
LOCATION	1941	1942	1943	1944	1945	1946	1947	1948	1949	1950	1951	1952	1953	1954	1955	1956	1957	1958	1959	1960																																																																																																																																																												
NEW YORK	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0	24.5	25.0	25.5	26.0	26.5	27.0	27.5	28.0	28.5	29.0	29.5	30.0	30.5	31.0	31.5	32.0	32.5	33.0	33.5	34.0	34.5	35.0	35.5	36.0	36.5	37.0	37.5	38.0	38.5	39.0	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5	45.0	45.5	46.0	46.5	47.0	47.5	48.0	48.5	49.0	49.5	50.0	50.5	51.0	51.5	52.0	52.5	53.0	53.5	54.0	54.5	55.0	55.5	56.0	56.5	57.0	57.5	58.0	58.5	59.0	59.5	60.0	60.5	61.0	61.5	62.0	62.5	63.0	63.5	64.0	64.5	65.0	65.5	66.0	66.5	67.0	67.5	68.0	68.5	69.0	69.5	70.0	70.5	71.0	71.5	72.0	72.5	73.0	73.5	74.0	74.5	75.0	75.5	76.0	76.5	77.0	77.5	78.0	78.5	79.0	79.5	80.0	80.5	81.0	81.5	82.0	82.5	83.0	83.5	84.0	84.5	85.0	85.5	86.0	86.5	87.0	87.5	88.0	88.5	89.0	89.5	90.0	90.5	91.0	91.5	92.0	92.5	93.0	93.5	94.0	94.5	95.0	95.5	96.0	96.5	97.0	97.5	98.0	98.5	99.0	99.5	100.0

BIRDSELL SERVICES GROUP
ENGINEERS & ARCHITECTS

PAUL CALABROSE, P.E.
REGISTERED PROFESSIONAL ENGINEER

CONSTRUCTION PLAN (1 OF 2)
UTILITY SERVICES & CONCRETE IMPROVEMENTS
FOR BOARDWALK
OCEAN AVENUE
BOROUGH OF BELMAR

NO. 1015
DATE: 10/1/60
SCALE: AS SHOWN
SHEET NO. 1 OF 6

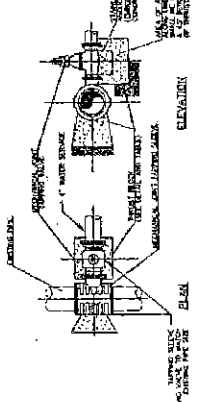


TYPICAL THRUST BLOCK CONSTRUCTION
PLAN VIEW

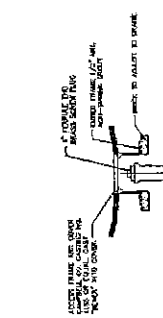
CONCRETE CLASS	MIN. THICKNESS	MIN. WIDTH	MIN. LENGTH	MIN. SPACING
1	12"	18"	36"	6"
2	12"	18"	36"	6"
3	12"	18"	36"	6"
4	12"	18"	36"	6"
5	12"	18"	36"	6"
6	12"	18"	36"	6"
7	12"	18"	36"	6"
8	12"	18"	36"	6"
9	12"	18"	36"	6"
10	12"	18"	36"	6"

1. CONCRETE SHALL BE CLASS 1000.
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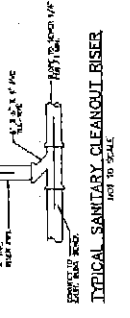
TABLE OF THRUST BLOCKS FOR HORIZONTAL BENDS



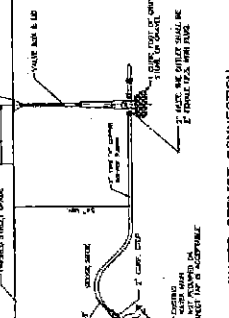
NOT TO SCALE



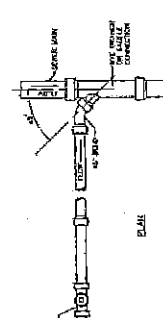
TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



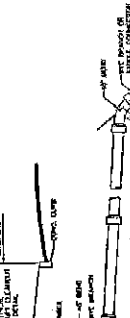
WATER SERVICE CONNECTION
NOT TO SCALE



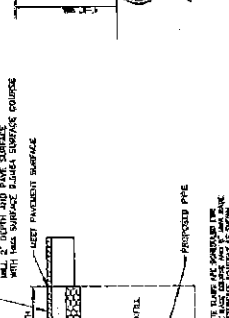
TRENCH RESTORATION & PAVEMENT RESTORATION
IN AREA OF CONCRETE BASE
NOT TO SCALE



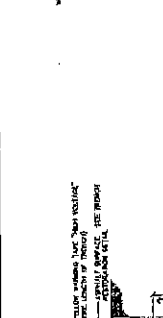
DETAIL STANDARD LATERAL CONNECTION
NOT TO SCALE



TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



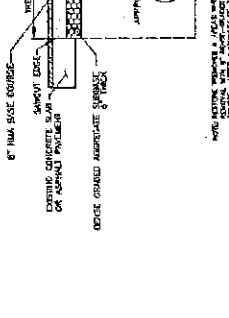
WATER SERVICE CONNECTION
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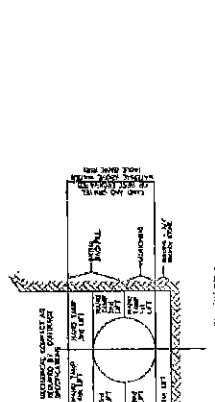
ELECTRICAL CONDUIT TRENCH
NOT TO SCALE



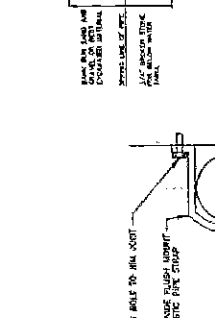
TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



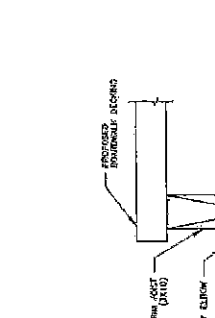
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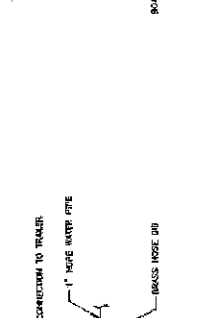
TAPPING SLEEVE AND VALVE ANCHORS
NOT TO SCALE



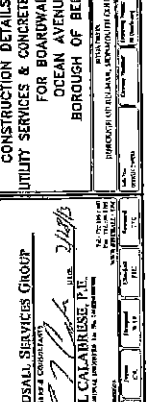
BEDDING AND INITIAL BACKFILL
DETAIL FOR SOLID WALL PIPE
NOT TO SCALE



CROSS SECTION VIEW OF
1\"/>

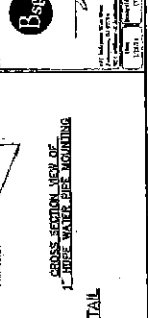


HOSE BIB MOUNTING DETAIL
NOT TO SCALE

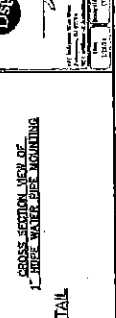


WATER CONNECTION DETAIL
AT BATHROOM TRAILER PAD
NOT TO SCALE

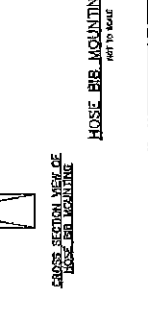
NOT TO SCALE



TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



DETAIL STANDARD LATERAL CONNECTION
NOT TO SCALE



TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



DETAIL STANDARD LATERAL CONNECTION
NOT TO SCALE



TYPICAL SANITARY CLEANOUT RISER
NOT TO SCALE



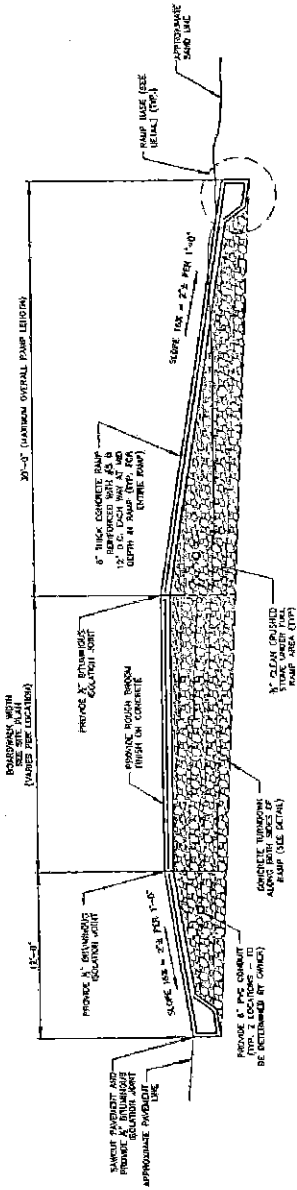
DETAIL STANDARD LATERAL CONNECTION
NOT TO SCALE

CONSTRUCTION DETAILS & NOTES
UTILITY SERVICES & CONCRETE IMPROVEMENTS
FOR BOARDWALK
OCEAN AVENUE
BOROUGH OF BELMAR

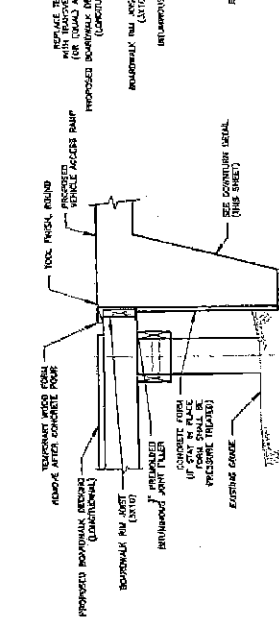
BIRDSEAL SERVICES GROUP
REGISTERED CONSULTANTS
PAUL CALABRESE, P.E.
A PROFESSIONAL ENGINEER IN THE STATE OF NEW JERSEY

DATE: 01/15/2024
PROJECT: BOARDWALK UTILITY SERVICES & CONCRETE IMPROVEMENTS FOR OCEAN AVENUE, BOROUGH OF BELMAR, NJ

5 of 6

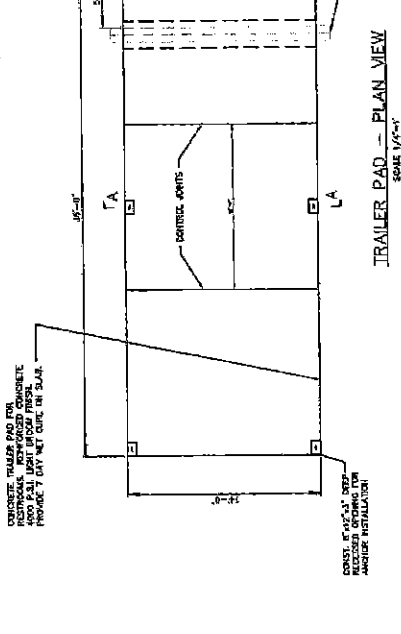


VEHICLE ACCESS RAMP CROSS SECTION
SCALE: 1/8" = 1'-0"

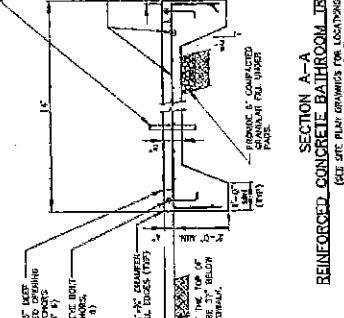
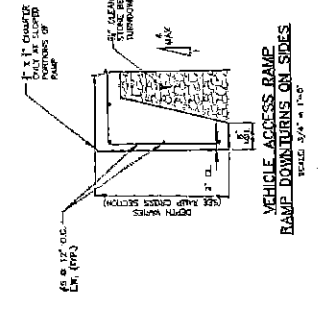
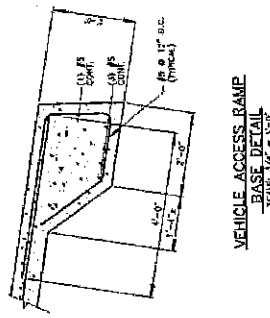


BOARDWALK AND VEHICLE ACCESS RAMP JOINT DETAIL (W/REINFORCED CONCRETE RAMP)
SCALE: 1/8" = 1'-0"

BOARDWALK AND VEHICLE ACCESS RAMP JOINT DETAIL (NO TO SCALE)



TRAILER PAD - PLAN VIEW
SCALE 1/8" = 1'-0"



Bsg BUSSELL SERVICES GROUP CONSULTING ENGINEERS			DATE NOV 11 2003		
1500 UNIVERSITY DRIVE, SUITE 200, BELLEVILLE, MO 63713 PH: 636-338-0800 FAX: 636-338-0801			DRAWING NO. 6-3-8		
CONSTRUCTION SECTIONS & DETAILS UTILITY SERVICES & CONCRETE IMPROVEMENTS FOR BOARDWALK OCEAN AVENUE BOROUGH OF BELMAR					

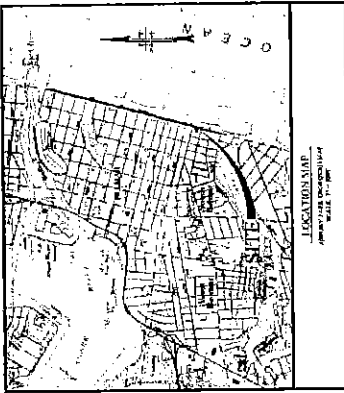
CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS

OCEAN AVENUE

BOROUGH OF BELMAR, NEW JERSEY

MONMOUTH COUNTY, NEW JERSEY

FEBRUARY 2013



GOVERNING BODY

MAYOR	MATTHEW DOHERTY
ADMINISTRATOR	COLLEEN CONNOLLY
BOROUGH COUNCIL	JAMES BEAN CLAIRE DECKE BRIAN MAGOYRIEN DENVER NICOLAI
BOROUGH CLERK	APRIL CLAUDIO

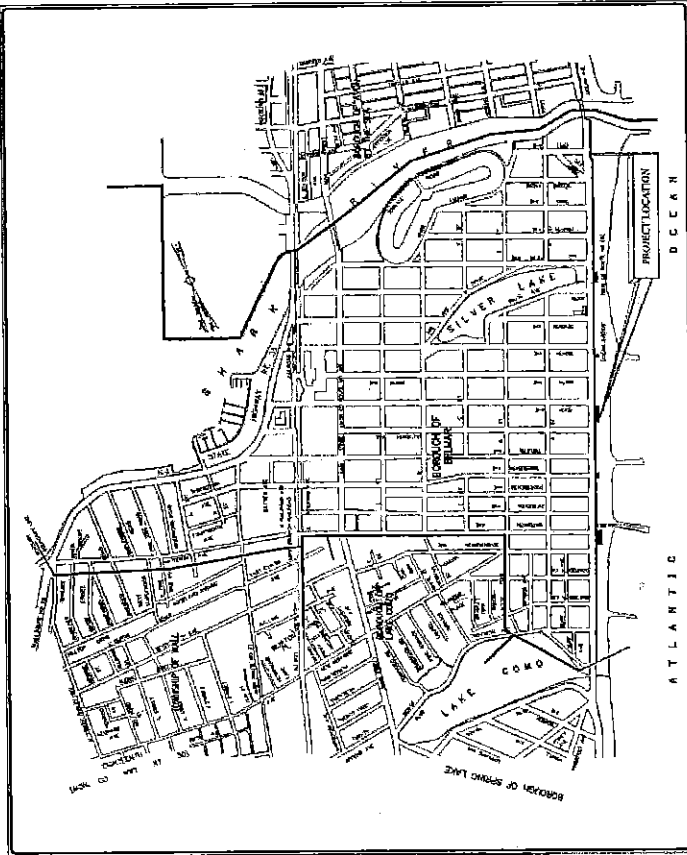
NOTICE TO CONTRACTOR

A copy of the Contract is attached to this bid. The approximate location of the project is shown on the key map. The contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies. The contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies. The contractor shall be responsible for obtaining all necessary permits and approvals from the appropriate agencies.

UTILITY CONTACTS

ELECTRIC	NEW JERSEY ELECTRIC & LIGHT
SEWER	311 HERMAN SPRINGS ROAD
WATER	611 SHREWSBURY AVENUE
TELEPHONE	300 NORTH AVENUE
CABLE	401 MARKET STREET
TELEVISION	401 MARKET STREET
POSTAL	401 MARKET STREET
TELEPHONE	401 MARKET STREET
TELEVISION	401 MARKET STREET
POSTAL	401 MARKET STREET

NO ONE CALL: (1-800-274-1000) or (611)



INDEX OF SHEETS

NO.	DESCRIPTION
1	TITLE SHEET
2	ESTIMATE OF QUANTITIES
3	OVERALL PLAN
4	SIGNING AND STRIPING PLAN
5	CONCRETE AND PAVEMENT PLAN
6	CONCRETE AND PAVEMENT PLAN
7	CONCRETE AND PAVEMENT PLAN
8	CONCRETE AND PAVEMENT PLAN
9	CONCRETE AND PAVEMENT PLAN
10	CONCRETE AND PAVEMENT PLAN
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25	CONCRETE AND PAVEMENT PLAN
26	CONCRETE AND PAVEMENT PLAN
27	CONCRETE AND PAVEMENT PLAN
28	CONCRETE AND PAVEMENT PLAN
29	CONCRETE AND PAVEMENT PLAN
30	CONCRETE AND PAVEMENT PLAN
31	CONSTRUCTION DETAILS

EXHIBIT H

BIRDSALL SERVICES GROUP
ENGINEERS & CONTRACTORS

PAUL CALABRESI, P.E.
Professional Engineer No. 21763

TITLE SHEET
CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

DATE: 1/20/13

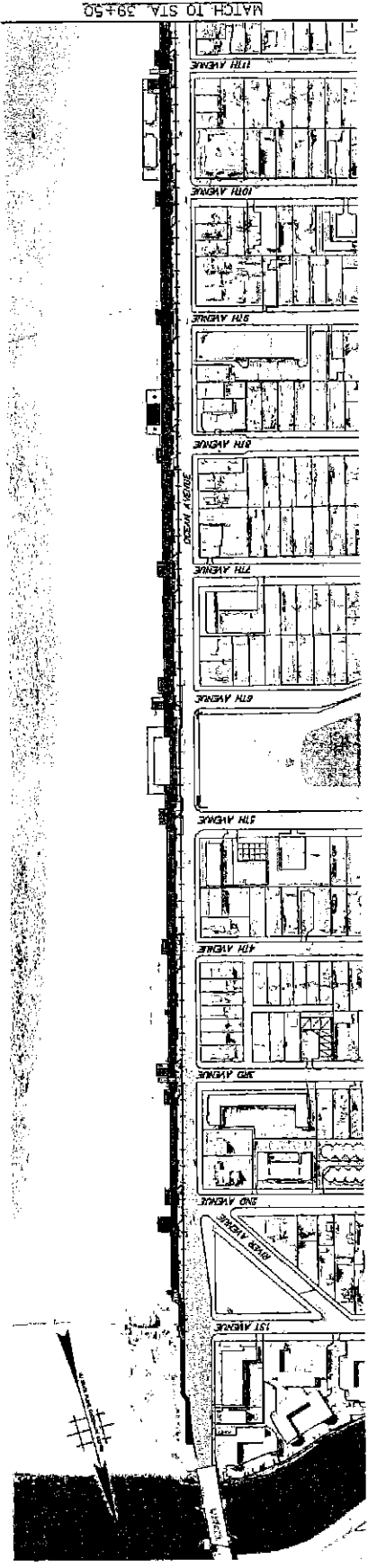
BASE BID

Item No.	Description	Unit	Type & Amount	Material Subject	Street Ends																																		
					4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29									
1	CONCRETE	sq	1.027	270	1,357																																		
2	CONCRETE	sq																																					
3	CONCRETE	sq	586	110	68																																		
4	CONCRETE	sq	681	110	68																																		
5	CONCRETE	sq	5,869	245	5,132	695	74	375	315	213	175	310	517	400	410	197	111																						
6	CONCRETE	sq	2,775	545	2,730	112	71	771	49	41	86	36	54	80	40	80	10																						
7	CONCRETE	sq	1,872	35	1,837	148	188	125	352	192																													
8	CONCRETE	sq																																					
9	CONCRETE	sq																																					
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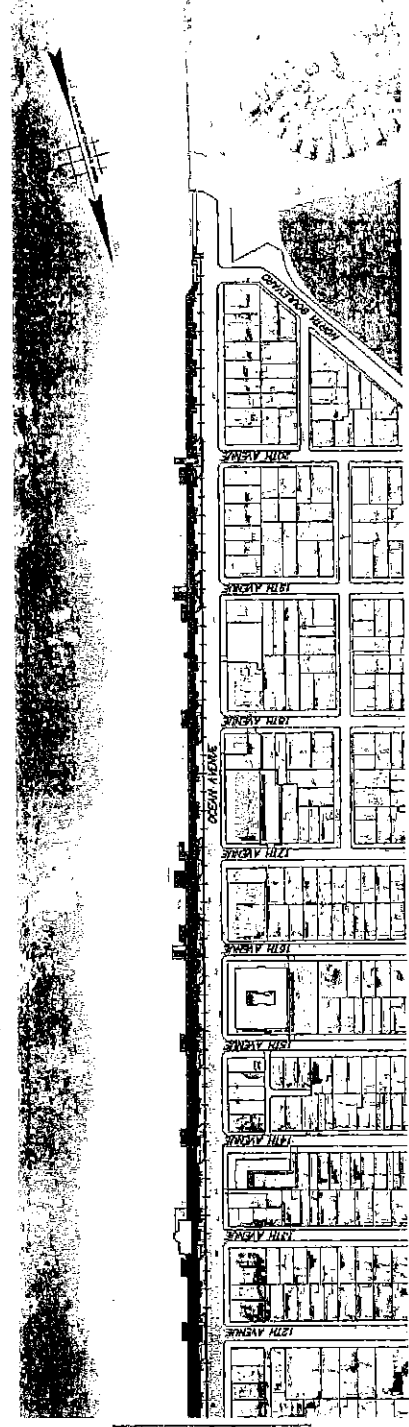
ALTERNATE BID

Item No.	Description	Unit	Type & Amount	Material Subject	Street Ends																																			
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20	CONCRETE	sq																																						
21	CONCRETE	sq																																						
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29	CONCRETE	sq																																						
30	CONCRETE	sq																																						

BSS	BIRDSEAL SERVICES GROUP
ESTIMATE OF QUANTITIES CONCRETE, PAYMENT & STRIPING IMPROVEMENTS OCEAN AVENUE BOROUGH OF BELMAR	
DATE: 12/1/2017	
PROJECT NO: 17-001	
DRAWING NO: 17-001-001	
SCALE: AS SHOWN	
SHEET NO: 2 OF 3	
DATE OF ISSUE: 12/1/2017	
BY: PAUL CALABRESE, P.E.	
CHECKED: [Signature]	
APPROVED: [Signature]	



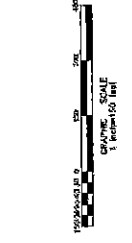
STA. 0+00 TO STA. 39+50



STA. 39+50 TO STA. 70+19

GENERAL NOTES

1. LANDSCAPING TO BE INSTALLED IN ACCORDANCE TO PARKING AREAS TO BE LOW BUSHES OR PLANTS TO NOT EXCEED 18" HEIGHT. FINAL LANDSCAPE DESIGN TO BE APPROVED BY THE OWNER.
2. APPROACH AND RISES OF LANDSCAPE ISLANDS TO HAVE REDUCED CURBS IN ACCORDANCE WITH CURB TRANSITION DETAIL (SEE SHEET 21).
3. SEPARATE MEASUREMENT AND PAYMENT SHALL NOT BE MADE FOR THE 2' EXISTING PAVEMENT FORMER STRIP. ALL ASSOCIATED COSTS SHALL BE INCLUDED IN THE BID ITEM FOR 4" ASPHALT CONCRETE CURB.
4. PARKING SPACE OF 16' MINIMUM PERpendicular TO THE FACE OF EACH PARKING SPOT AS DIRECTED BY THE OWNER. PAYMENT FOR SPACE NUMBERING TO BE MADE UNDER TRAFFIC MARKING, TRAFFIC MARKING, PARKING SPACE NUMBERING.



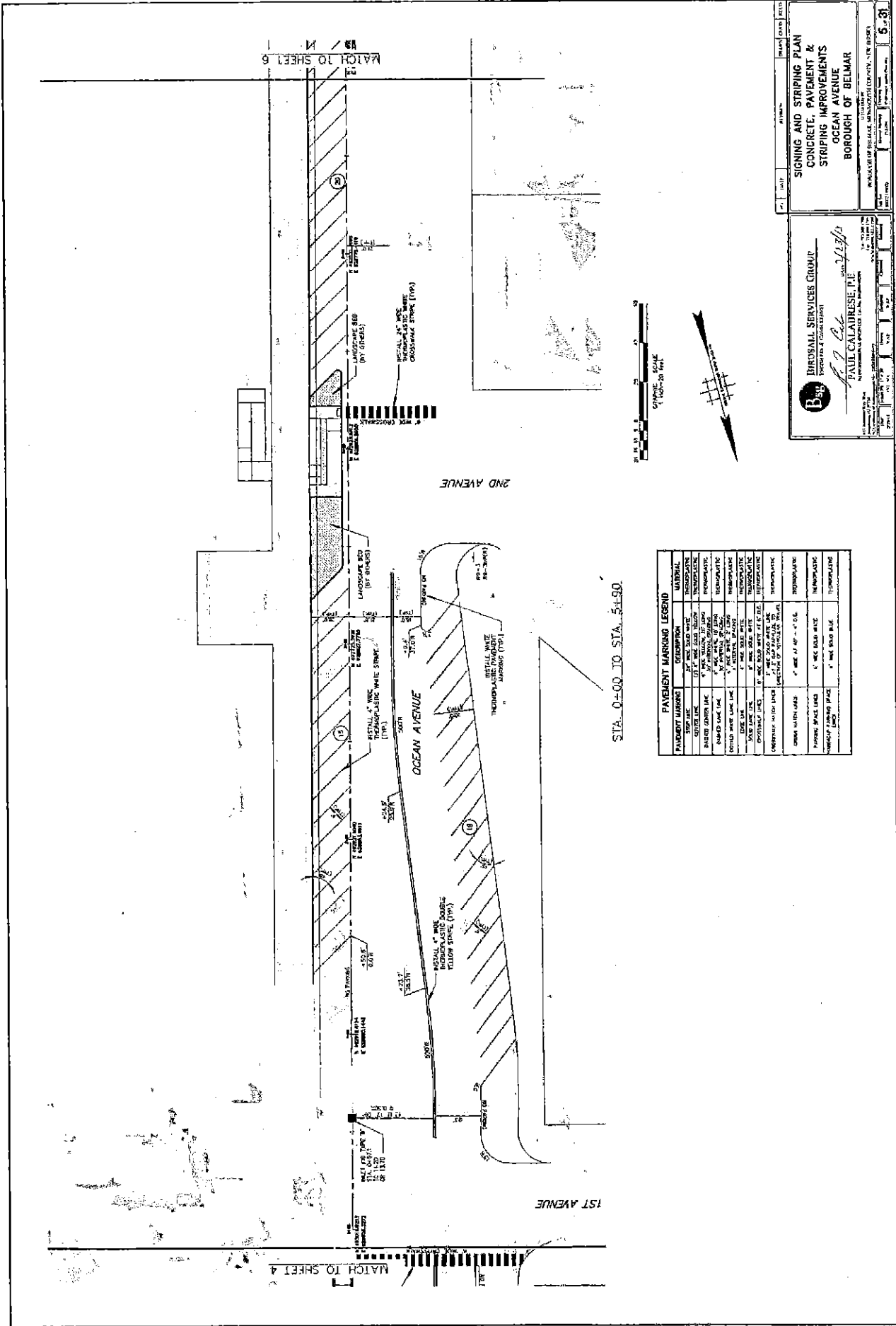
BIRDSALL SERVICES GROUP
ENGINEERS & ARCHITECTS

Paul Calabrese P.E.
PAUL CALABRESE P.E.

140 HUNTER DRIVE
NEWARK, NJ 07102
TEL: 973-261-1100 FAX: 973-261-1101

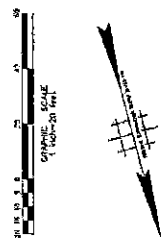
OVERALL PLAN
CONCRETE, PAVEMENT &
STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

DATE: 08/14/19
SCALE: AS SHOWN
SHEET NO.: 3 OF 31



STA. 0+00 TO STA. 5+90.

PAVEMENT MARKING	DESCRIPTION	MATERIAL
STOP LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CENTER LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVING MARK LINES	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
EDGE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE SIDE LINE	1" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC



BIRDSONG SERVICES GROUP
ENGINEERS & CONSULTANTS

Paul Calabrese, P.E.

PAUL CALABRESE, P.E.

SIGNING AND STRIPING PLAN
CONCRETE, PAVEMENT &
STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

DATE: 10/15/10

PROJECT NO: 10-100

SCALE: AS SHOWN

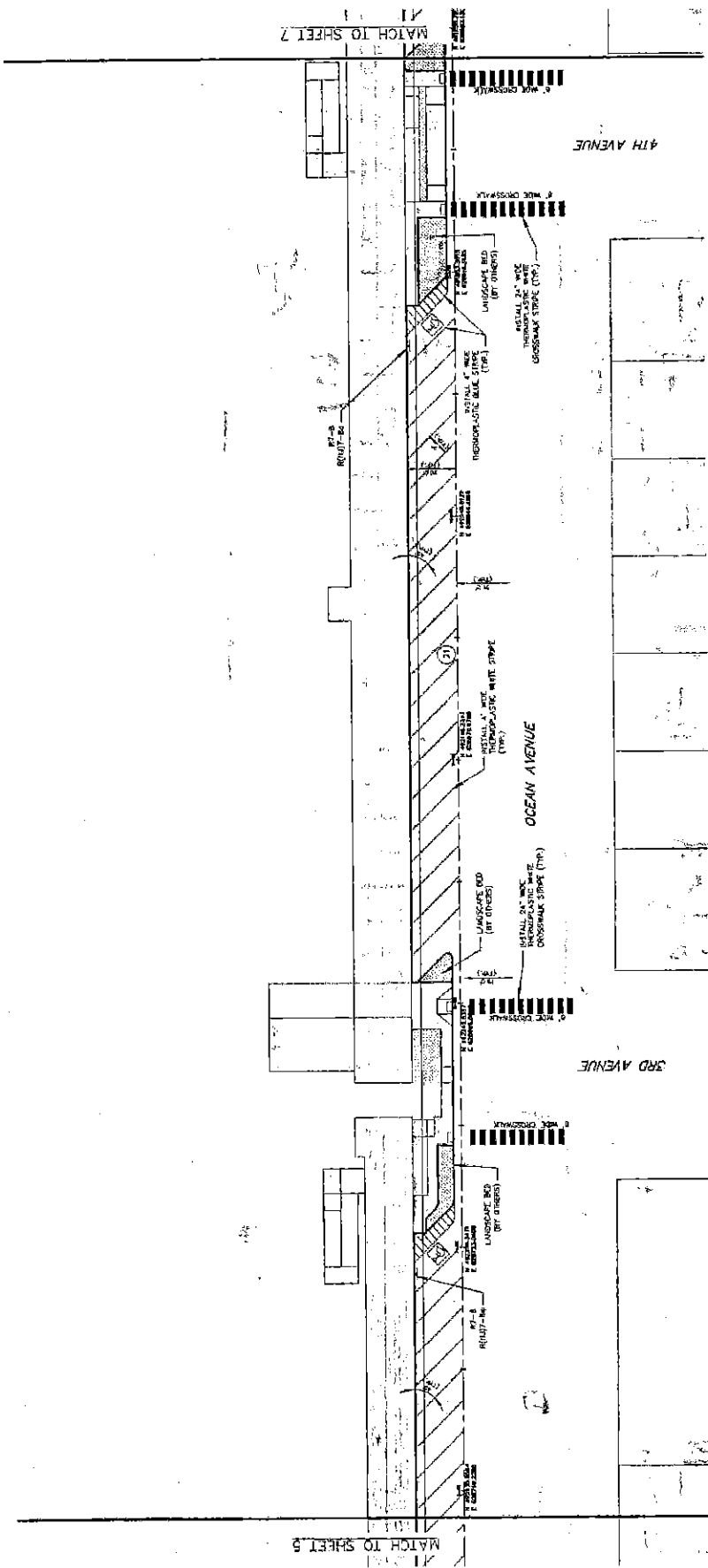
5-3

APPROVED: [Signature]

DATE: 10/15/10

MATCH TO SHEET 7

MATCH TO SHEET 5

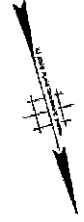


4TH AVENUE

OCEAN AVENUE

3RD AVENUE

STA. 5+90 TO STA. 11+90



PAVEMENT MARKING LEGEND

PAVEMENT MARKING	DESCRIPTION	MATERIAL
ROAD MARK LINES	4" WIDE YELLOW SOLID	YELLOW PAINT
ROAD MARK LINES	4" WIDE WHITE SOLID	WHITE PAINT
ROAD MARK LINES	4" WIDE WHITE DASH	WHITE PAINT
ROAD MARK LINES	4" WIDE YELLOW DASH	YELLOW PAINT
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS	WHITE PAINT WITH REFLECTIVE BEADS
ROAD MARK LINES	4" WIDE YELLOW SOLID WITH REFLECTIVE BEADS	YELLOW PAINT WITH REFLECTIVE BEADS
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS	WHITE PAINT WITH REFLECTIVE BEADS
ROAD MARK LINES	4" WIDE YELLOW SOLID WITH REFLECTIVE BEADS (INCLUDES 5\"/>	
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS	WHITE PAINT WITH REFLECTIVE BEADS
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS (INCLUDES 5\"/>	
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS	WHITE PAINT WITH REFLECTIVE BEADS
ROAD MARK LINES	4" WIDE WHITE SOLID WITH REFLECTIVE BEADS	WHITE PAINT WITH REFLECTIVE BEADS

DATE: _____ DRAWN BY: _____ CHECKED BY: _____

SIGNING AND STRIPING PLAN
CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

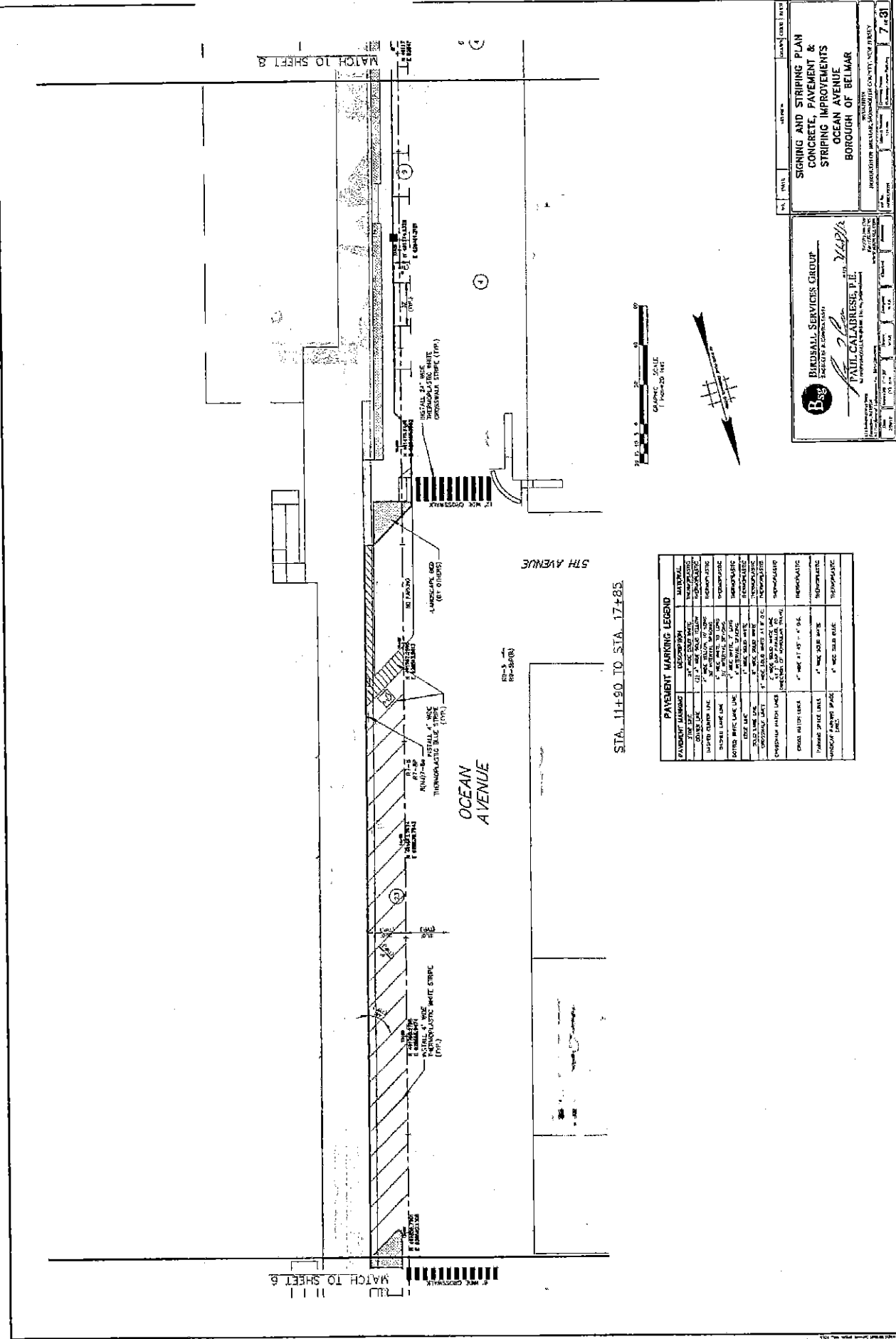
PROPERTY OF BELMAR, MIDDLESEX COUNTY, NEW JERSEY

PROJECT NO. _____ CONTRACT NO. _____ SHEET NO. **6** OF **31**

BIRDSALL SERVICES GROUP
 ENGINEERS & ARCHITECTS

Paul Calabrese
 PAUL CALABRESE, P.E.

111 WEST 10TH AVENUE, SUITE 200
 NEW YORK, NY 10011
 TEL: (212) 692-1234 FAX: (212) 692-1235



STA. 11+90 TO STA. 17+85

PAVEMENT MARKING LEGEND

PAVEMENT MARKING	DESCRIPTION	MATERIAL
CENTER LINE	1" WIDE YELLOW	REFLECTIVE
EDGE LINE	1" WIDE YELLOW	REFLECTIVE
CROSSWALK	12" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
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STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE
STOPPED	3" WIDE WHITE	REFLECTIVE

BIRDBALL SERVICES GROUP
 ENGINEERS & DESIGNERS

MICHAEL J. VIGORE, P.E.
 PROJECT MANAGER

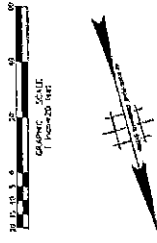
**SIGNING AND STRIPING PLAN
 CONCRETE, PAVEMENT &
 STRIPING IMPROVEMENTS
 OCEAN AVENUE
 BOROUGH OF BELMAR**

DATE: 7-14-81

SCALE: AS SHOWN

PROJECT NO.: 81-11

SHEET NO.: 7 OF 81



MATCH TO SHEET 10

REBAR
LAMPY (01)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
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REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

INSTALL 1/2" WIDE
REFLECTIVE WHITE
THERMOPLASTIC BLUE (TWB)

MATCH TO SHEET 8

OCEAN AVENUE

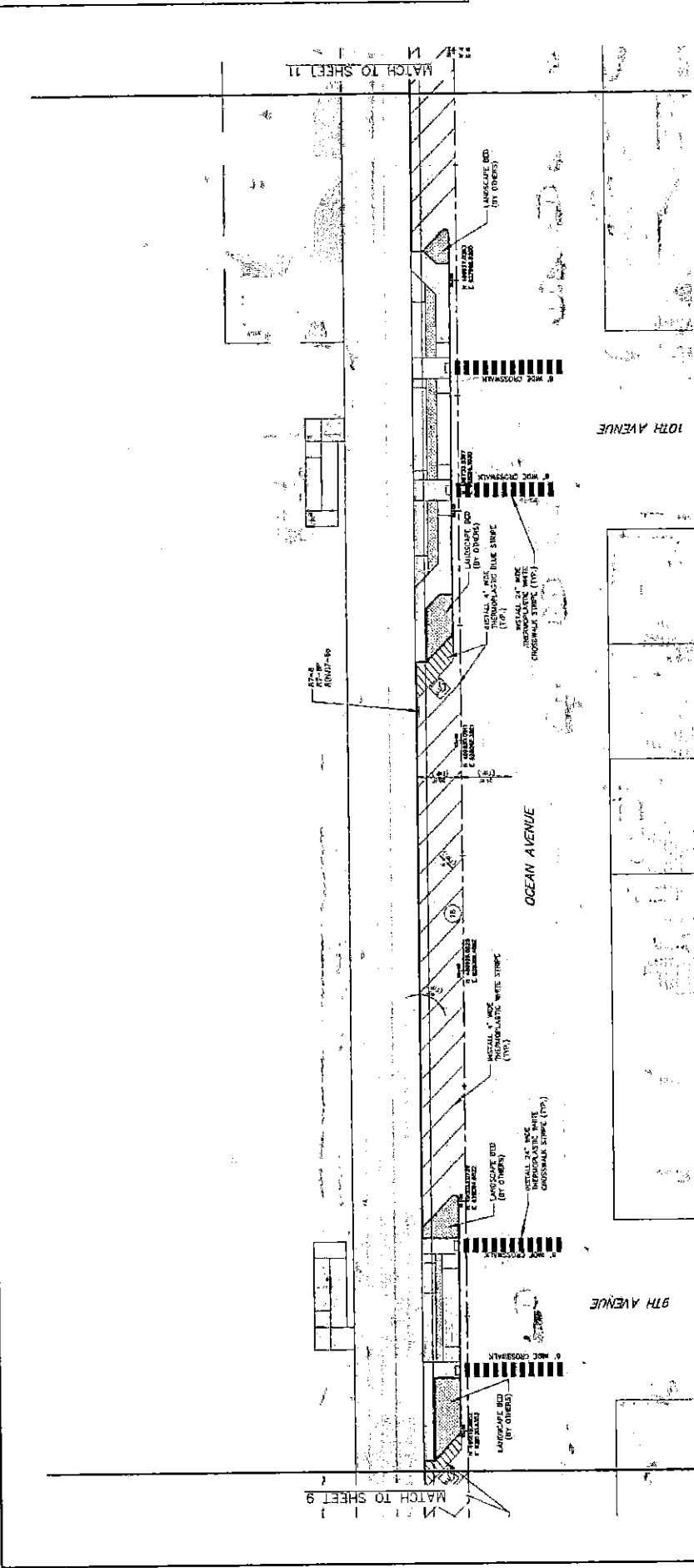
8TH AVENUE

STA. 23+85 TO STA. 29+80



PAVEMENT MARKING	DESCRIPTION	MATERIAL
STOP LINE	4" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CHANGING LANE	4" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
STOPPED VEHICLE LINE	4" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
UNPAVED LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
PAVED LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
UNPAVED LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
CONCRETE MATCH LINES	4" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
SPEED LIMIT UNDS	4" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC
LANE LINE	1/2" WIDE SOLID WHITE	REFLECTIVE WHITE THERMOPLASTIC

SIGNING AND STRIPING PLAN CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS OCEAN AVENUE BOROUGH OF BELMAR		
DIRDSALL SERVICES GROUP Engineers & Contractors PAUL CALABRINO P.E.		BELMONT COUNTY, NEW JERSEY DEPARTMENT OF TRANSPORTATION
DATE: 10/10/18 PROJECT NO.: 18-003	DRAWING NO.: 18-003-001	SHEET NO.: 9 OF 31

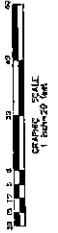


10TH AVENUE

OCEAN AVENUE

9TH AVENUE

STA. 29+80 TO STA. 35+90



PAVEMENT MARKING LEGEND		
PAVEMENT MARKING	DESCRIPTION	MATERIAL
4" WIDE STRIPING	4" WIDE STRIPING	TEMPORARY/PERMANENT
8" WIDE STRIPING	8" WIDE STRIPING	TEMPORARY/PERMANENT
6" WIDE STRIPING	6" WIDE STRIPING	TEMPORARY/PERMANENT
CONCRETE SIDEWALK	CONCRETE SIDEWALK	CONCRETE
12" WIDE CONCRETE CROSSWALK	12" WIDE CONCRETE CROSSWALK	CONCRETE
4" WIDE STRIPING	4" WIDE STRIPING	TEMPORARY/PERMANENT
8" WIDE STRIPING	8" WIDE STRIPING	TEMPORARY/PERMANENT
6" WIDE STRIPING	6" WIDE STRIPING	TEMPORARY/PERMANENT
CONCRETE SIDEWALK	CONCRETE SIDEWALK	CONCRETE
12" WIDE CONCRETE CROSSWALK	12" WIDE CONCRETE CROSSWALK	CONCRETE
4" WIDE STRIPING	4" WIDE STRIPING	TEMPORARY/PERMANENT
8" WIDE STRIPING	8" WIDE STRIPING	TEMPORARY/PERMANENT
6" WIDE STRIPING	6" WIDE STRIPING	TEMPORARY/PERMANENT

10-31
10-31

BIGSDALL SERVICES GROUP
 ENGINEERS & CONSULTANTS

PAUL CALABRESE P.E.
 400 BELMONT AVE. SUITE 200
 BELMAR, NJ 07623
 (973) 963-7300

SIGNING AND STRIPING PLAN
 CONCRETE, PAVEMENT &
 STRIPING IMPROVEMENTS
 OCEAN AVENUE
 BOROUGH OF BELMAR

APPROVED BY: _____ DATE: _____
 SUPERVISOR OF THE B.L.A. MAINTENANCE DIVISION, BOROUGH OF BELMAR

11 1 1

12TH AVENUE

MATCH TO SHEET 10

11TH AVENUE

STA. 35+80 TO STA. 41+80

PAVEMENT MARKING	DESCRIPTION	MATERIAL
6" WIDE CROSSWALK		ASPHALT
1" WIDE YELLOW PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT
1" WIDE YELLOW PAINT		PAINT
1" WIDE WHITE PAINT		PAINT
4" WIDE WHITE PAINT		PAINT



BIRDSALL SERVICES GROUP

INCORPORATED IN MICHIGAN

PAUL CALABRESSE, P.E.

14100 E. FARM ROAD, SUITE 100, FARMING LEE, MI 48429
 TEL: (517) 536-2100 FAX: (517) 536-2101
 WWW.BIRDSALLSG.COM

SIGNING AND STRIPING PLAN

CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS

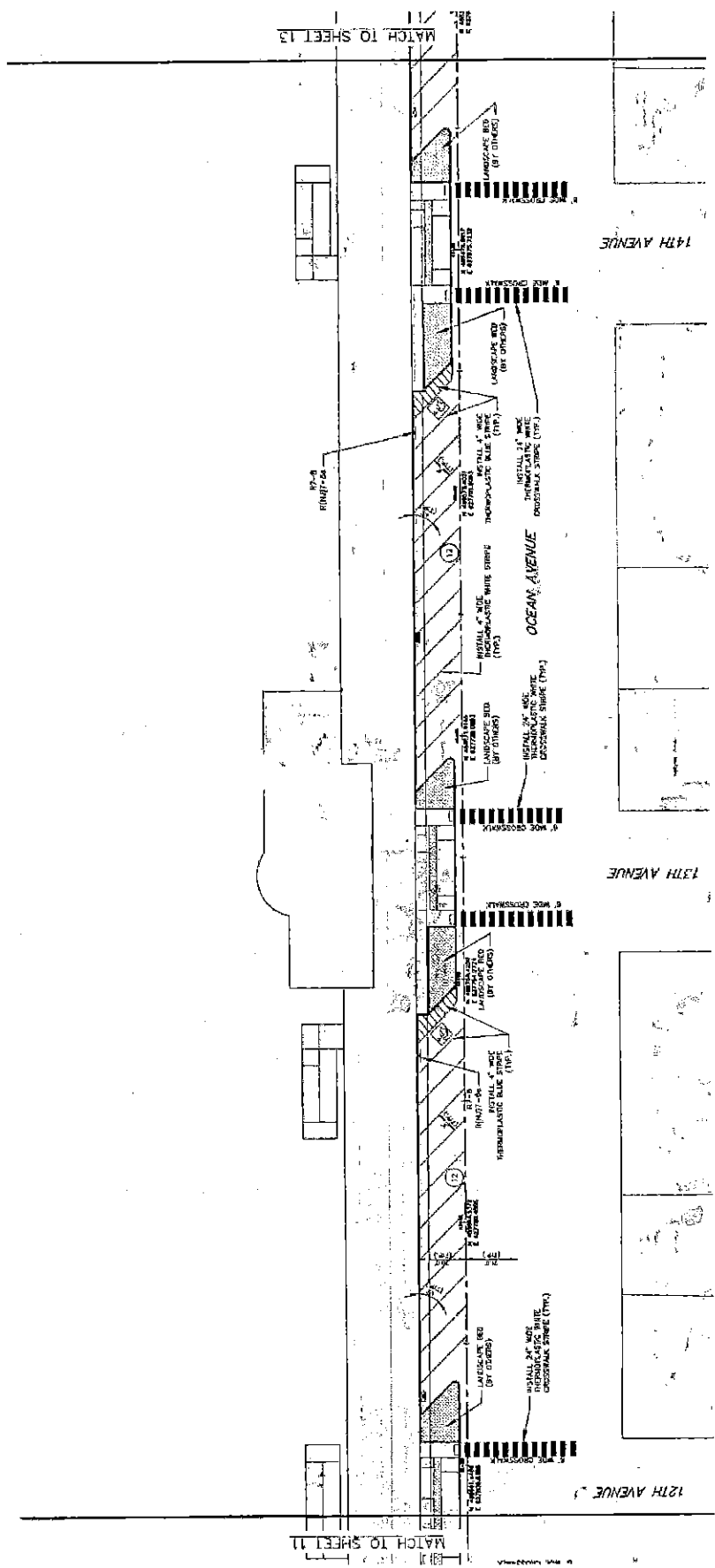
OCEAN AVENUE

BOROUGH OF BELMAP

DRAWN BY: [unintelligible] CHECKED BY: [unintelligible]
 DATE: [unintelligible] SCALE: [unintelligible]

MATCH TO SHEET 13

MATCH TO SHEET 11



14TH AVENUE

13TH AVENUE

12TH AVENUE

STA. 41+80 TO STA. 47+80



PAVEMENT MARKING LEGEND

PAVEMENT MARKING	DESCRIPTION	NATIONAL
ROADWAY CENTER LINE	1/2" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1/2" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1/2" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY CENTER LINE	1/2" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1/2" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1/2" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY CENTER LINE	1/4" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1/4" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1/4" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY CENTER LINE	1/4" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1/4" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1/4" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY CENTER LINE	1" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1" WIDE YELLOW LINE	NON-PRESCRIPTIVE
ROADWAY CENTER LINE	1" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY EDGE LINE	1" WIDE WHITE LINE	NON-PRESCRIPTIVE
ROADWAY SIDE LINE	1" WIDE WHITE LINE	NON-PRESCRIPTIVE

BIRDSALL SERVICES GROUP
ENGINEERS & CONSULTANTS

Paul Calabrese
PAUL CALABRESE, P.E.

SIGNING AND STRIPING PLAN
CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

DATE: 12/1/80

SCALE: AS SHOWN

PROJECT: BELMAR, NJ

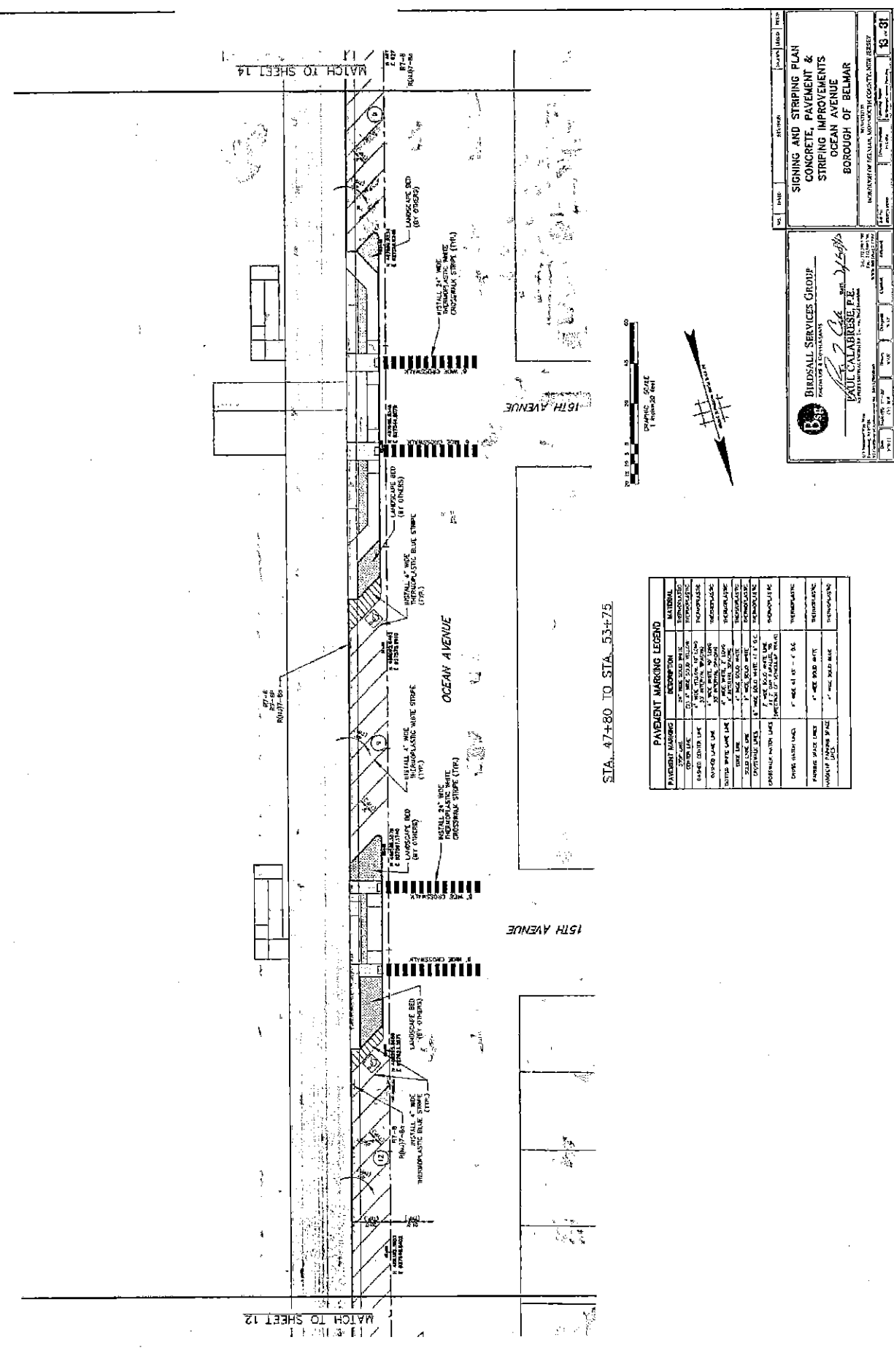
NO. OF SHEETS: 12

SHEET NO.: 8

127TH AVENUE

MATCH TO SHEET 14

MATCH TO SHEET 12



STA. 47+80 TO STA. 53+75

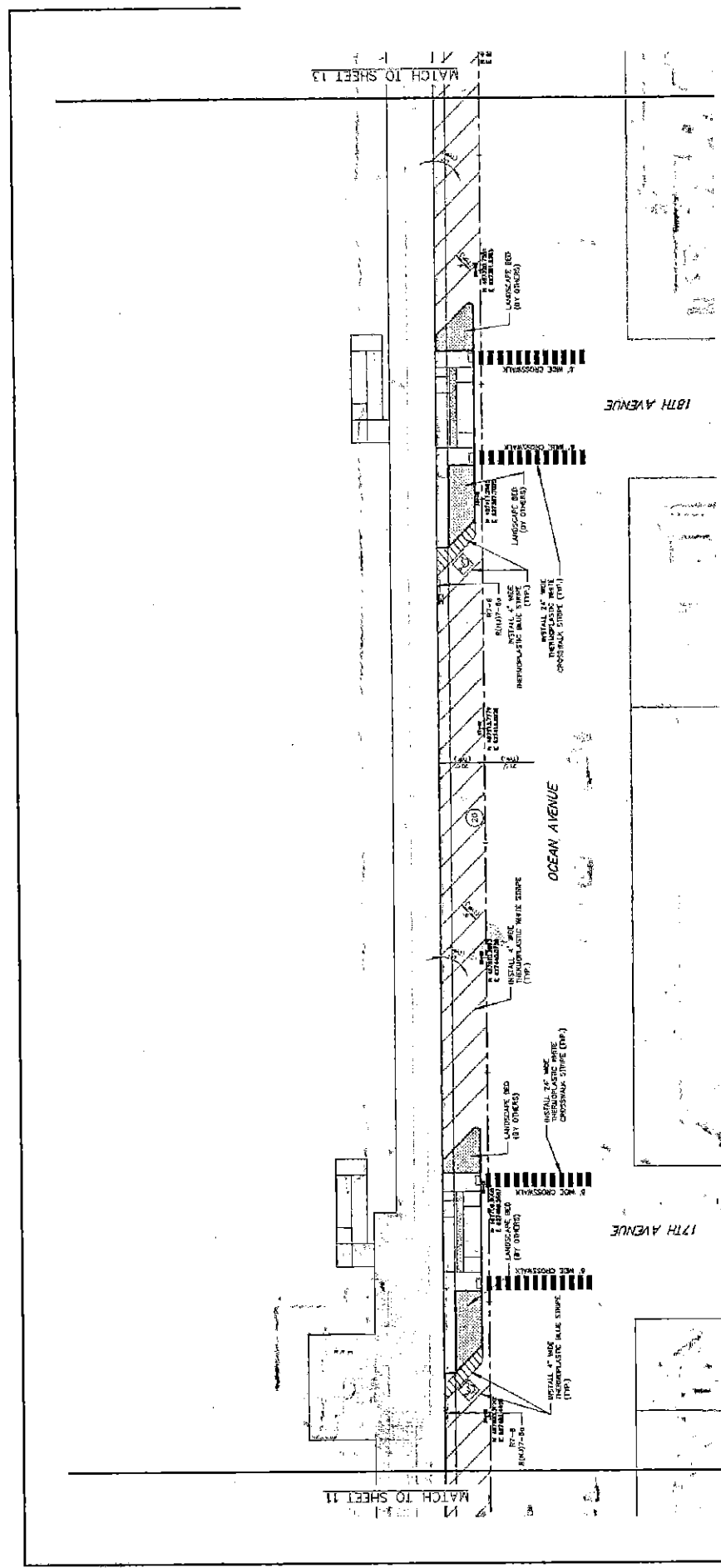
PAVEMENT MARKING	DESCRIPTION	MATERIAL
EDGE LINE	2" WIDE SOLID WHITE	HYDROPLASTIC
CENTER LINE	2" WIDE SOLID WHITE	HYDROPLASTIC
ROAD EDGE LINE	2" WIDE SOLID WHITE	HYDROPLASTIC
LANE LINE	2" WIDE SOLID WHITE	HYDROPLASTIC
STOP LINE	2" WIDE SOLID WHITE	HYDROPLASTIC
CROSSWALK WITH LINES	4" WIDE SOLID WHITE	HYDROPLASTIC
CROSSWALK WITH LINES	4" WIDE SOLID WHITE	HYDROPLASTIC
DRIVE WITHIN MARK	2" WIDE SOLID WHITE	HYDROPLASTIC
PARALLEL MARK	2" WIDE SOLID WHITE	HYDROPLASTIC
WHEEL WASH MARK	2" WIDE SOLID WHITE	HYDROPLASTIC

BIRDSELL SERVICES GROUP
 INCORPORATED & REGISTERED
 1000 W. 10TH AVENUE, SUITE 100, NEW BRUNSWICK, NJ 08901
 (908) 839-1234

CONCRETE, PAVEMENT & STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

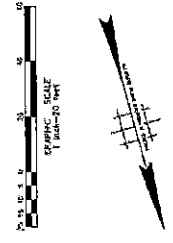
DATE: 05/14/14
 DRAWN: J. J. ZIGLI
 CHECKED: J. J. ZIGLI
 PROJECT NO.: 14-001

13-81



STA. 53+75 TO STA. 59+75

PAVEMENT MARKING	DESCRIPTION	MATERIAL
PAVEMENT MARKING	DESCRIPTION	MATERIAL
STOP SIGN	4\"/>	



BIBBULL SERVICES GROUP
ENGINEERS & SURVEYORS

PAUL CALABRUSSE, P.E.
REGISTERED PROFESSIONAL ENGINEER

DATE: 10/11/13

SIGNING AND STRIPING PLAN
CONCRETE, PAVEMENT &
STRIPING IMPROVEMENTS
OCEAN AVENUE
BOROUGH OF BELMAR

SHEET NO. 14 OF 21

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