

CHANNEL DEEPENING IN THE PORT OF NEW YORK AND NEW JERSEY – UTILITY RELOCATIONS AND REMOVALS

Thomas F. Costanzo, P.E.¹

ABSTRACT

The Port of New York and New Jersey – a vast metropolis largely of islands connected not only by a comprehensive network of bridges, tunnels, ferries and ship channels, but also by an unseen series of pipelines, communication cables and energy cables that lay unseen beneath the water's surface. The Port Authority of New York & New Jersey has been working with the U.S. Army Corps of Engineers, New York District since 1986 to deepen channels in the Port of New York and New Jersey for the newer generations of container ships and has signed on with the Corps to begin the latest and last multi-year phase of channel deepening to 15.15 m (50 feet). The planning for and construction of this last phase of deepening includes the relocation of several major utility lines. This paper presents the utility relocation efforts that the Port Authority has accomplished to date in its role as project sponsor as well as what remains to be done to help ensure that the channels are deepened on schedule and within budget.

Keywords: Corps, Dredging, Pipelines, Federal, Sponsor

INTRODUCTION

The New York District of the U.S. Army Corps of Engineers has been constructing major improvements to ship channels in the Port of New York and New Jersey since 1987. The New York District is performing this work through four authorized projects: the Kill Van Kull and Newark Bay Channels, NY and NJ Project (13.6 m (45 Feet)); the Arthur Kill Channel, NY and NJ Project (12.42 m (41 Feet)/12.12 m (40 Feet)); the New York Harbor and Adjacent Channels, Port Jersey, NJ Project (12.42 m (41 Feet)); and the New York and New Jersey Harbor Deepening Project (15.15 m (50 Feet)). The Port Authority of New York & New Jersey is the required cooperating sponsor for all of these projects except for the Port Jersey deepening project, which the State of New Jersey is sponsoring.

During the feasibility and design of these projects, the New York District searched its permit records and identified a number of potentially impacted utilities that were within the projects' limits and either were abandoned or were active and required relocation. Table 1 lists these potentially impacted utilities. When it signed Agreements of Project Cooperation, the Port Authority agreed to assume the responsibility for performing or assuring the performance where appropriate of relocations, deep-draft relocations and removals, a decision arrived at after much consideration.

¹ Manager, Capital Programs, Waterways Development, Port Commerce Department, The Port Authority of New York & New Jersey, 225 Park Avenue South, New York, NY 10003-1606, T: 212-435-4269, Fax: 212-435-4202, Email: tcostanz@panynj.gov

Table 1. Potentially Impacted Utilities Identified by the New York District, Corps of Engineers

PROJECT	DESCRIPTION	APPARENT OWNER	LOCATION
KILL VAN KULL AND NEWARK BAY DEEPENING	One cable in natural bottom (abandoned)	Western Union	Not specified
	Eighteen armored cables in a trench (to be abandoned)	NY Telephone	Not specified
	One 0.3 m (12-inch) pipeline in a trench (relocation)	Texas Pipeline	Not specified
	Two 0.2 m (8-inch) and one 0.3 m (12-inch) pipelines in a trench (relocation)	Exxon	Not specified
	Seven submarine cables in a trench (removal)	Conrail and Western Union	Not specified
ARTHUR KILL DEEPENING	Two 0.2 m (8-inch) Pipelines; One 0.3 m (12-inch) Pipeline; One 0.61 m (24-inch) Pipeline.	Exxon	North of Shooters Island Reach, Bayonne to Port Ivory
	Two 0.2 m (8-inch) Pipelines	Exxon	Gulfport Reach, Gulfport to Bayway
	Two 0.2 m (8-inch) Pipelines; One 0.3 m (12-inch) Pipeline	Exxon	North of Shooters Island Reach, Bayonne to Port Ivory
	One 0.3 m (12-inch) Pipeline	Texas Pipeline Company	North of Shooters Island Reach, Bayonne to Port Ivory
	Two 0.35 m (14-inch) Pipelines	Colonial Pipeline Company	Elizabeth Port Reach, Elizabeth to Howland Hook
HARBOR DEEPENING PROJECT	Two water mains (0.91 m (36”) and 1.06 m (42”))	Not specified	Anchorage Channel
	One 0.3 m (12-inch) natural gas pipeline	Not specified	South Elizabeth Channel and Newark Bay

INTERPRETING THE LAW

Section 10 of the Rivers and Harbors Act of 1899 provides that the Corps of Engineers approve a request from anyone to place an obstruction in navigable waters and should that obstruction interfere with an existing or proposed federal project, the permittee must pay for corrective measures to comply with its permit conditions. When applying this law to a utility that an owner has placed within a federal navigation project by a permit issued by the Corps, it appears clear that the utility owner must bear the financial responsibility for removing that utility as an obstacle to the project without exception and regardless of whether the owner chooses to relocate the utility.

The Water Resources Development Act of 1986 was landmark legislation that among other things authorized a sizable number of federal projects for design and construction and provided for the first time that sponsors of federal projects cost share work with the Government. Section 101(a)(4) of this law appears to conflict with the Rivers and Harbors Act of 1899 by providing in somewhat obscure language that

“the non-Federal interests for a project...shall perform or assure the performance of all relocations of utilities necessary to carry out the project, except that in the case of a project for a deep-draft harbor...one-half of the cost of each such relocation shall be borne by the owner of the facility being relocated and one-half of the cost of each such relocation shall be borne by the non-Federal interests.”

On face value the intent of the law appears straightforward, namely that the sponsor shall be responsible for moving the utilities and the federal government has no apparent interest in participating. However, interpreting and applying the law has proven to be more complicated than the way it was perhaps intended to be applied. For example, the law did not define the term “relocation”. Did “relocation” mean the removal of an active utility accompanied by a comparable replacement? Does the meaning of “relocation” include the removal of abandoned utilities? Alternatively, should one consider separately the term “removal” and what that definition might be? Could the term “removal” mean the classification of an abandoned utility as a channel obstruction and the associated removal of that obstruction from the channel? The Corps of Engineers pondered questions of this nature and sought to provide answers through a series of Policy Guidance Letters. While Policy Guidance Letter (PGL) No. 44 entitled “Relocations and Removals at Navigation (Harbor) Projects” dated October 20, 1995 and last updated May 19, 1999 was the fourth and final in a series and while it provided the most comprehensive Corps guidance to date, it was not absolute.

PGL No. 44 defines “Relocation” as “providing a functionally equivalent facility, regardless of the depth of the navigation project, to the owner of an existing utility...when such action is authorized in accordance with applicable legal principles of just compensation” or “when such action is specifically provided for...in the authorizing legislation.” However, PGL No. 44 discusses further that “the owner of a facility within the navigation servitude has no real property interest that must be extinguished with regard to the Federal government for the portion of the structure within the navigation servitude and the owner of the facility within the servitude is not entitled to a substitute facility when compelled to remove the facility because it is an obstruction to the Federal navigation project.” PGL No. 44 defines other relevant terms as well. “Navigation Servitude” is “the public’s right of free use of all streams and water bodies for navigation despite the private ownership of the bottom or shoreline”. “Deep-Draft Utility Relocation” is “providing a functionally equivalent facility to the owner of an existing utility serving the general public when such action is not a Relocation” and it “is necessary for the construction, operation and maintenance of the general navigation features of the project...”. “Removal” is defined as follows: “Where there is an obstruction to a navigation project that is within the navigation servitude, and that obstruction does not fit within the definition of a Deep-Draft Utility Relocation...or the definition of a Relocation..., the obstruction will be removed at owner cost to accommodate the navigation project”.

Other areas of interest discussed in PGL No. 44 that likely would be significant to a non-federal sponsor of a navigation project facing the prospect of moving utilities include but are not limited to the following:

- The capability of a sponsor to compel an owner to remove/relocate his utility.
- The ability of the states to compel an owner to remove/relocate his utility
- The treatment of any payments by the sponsor to the utility owner.
- The treatment of costs incurred entirely by the utility owner.
- Possible Corps of Engineers actions to ensure the removal/relocation of the utility.

- Court actions
- How the Corps of Engineers identifies potentially impacted utilities.

Figures 1 and 2 depict generally the decision pathways that the Port Authority pursued to identify responsibilities, which are described with greater specificity in the project cooperation agreements executed between the Corps of Engineers and the Port Authority. Figure 3 illustrates how the Port Authority differentiates between Relocation and Removal during coordination with the utilities.

IMPLEMENTING THE PROCESS

The New York District first began channel improvement work in the Port of New York and New Jersey in 1987 when it started deepening the Kill Van Kull and Newark Bay Channels from an existing depth of 10.61 m (35 feet) to a new depth of 12.12 m (40 feet). The Port Authority had requested that the New York District initially deepen these two channels first to 12.12 m (40 feet) thereby leaving the remaining deepening to 13.63 m (45 feet) as a later phase of construction. During this first phase of work, there were no utilities to relocate or remove. However, in early 1999, the New York District initiated the second phase of work (deepening to 13.63 m (45 feet)) in the Kill Van Kull and Newark Bay Channels and several impacted utilities were now a factor. In concert with this work but at a later date, the New York District would begin the deepening of the adjacent Arthur Kill federal channel and also would be finalizing a feasibility study for the Harbor Deepening Project. While each project identified impacted utilities, several were the same from project to project. Since the Harbor Deepening Project not only included the Kill Van Kull, Newark Bay and Arthur Kill channels but also would be the last federal deepening project constructed in the Port, the Port Authority decided to begin planning to relocate impacted utilities to accommodate the Harbor Deepening Project.

PORT AUTHORITY PLANNING AND ACTIONS

Prior to the authorization of the Harbor Deepening Project for construction in 2002, the Port Authority had not yet negotiated a Project Cooperation Agreement with the Corps of Engineers. This meant that should the Port Authority begin to incur costs associated with utilities, it would do so without assurances of receiving credit from the Government. Nevertheless, the Port Authority likely faced a long and arduous coordination process and so it had to make a business decision sooner rather than later to begin working with utility companies to relocate their impacted utilities. In 1999, the Port Authority sought to identify the scope of the problem and the work required. If deepening the channels in the Port were to be accomplished on schedule, the Port Authority would have to assure that all impacted utilities were relocated as necessary before the New York District completed channel deepening. The Port Authority believed that information provided by the New York District and listed in Table 1 offered a good starting point, but was of limited value and not completely reliable since it was old and potentially outdated. The Port Authority became concerned that there might be other potentially impacted utilities within the limits of the Projects and so it decided to conduct its own utility search of the Harbor not only to verify New York District information, but also to identify with a high degree of certainty and comfort the locations and current owners of all potentially impacted utilities.

In April 2000, the New York District was beginning to intensify construction activity in an area of the Port that included the confluence of the Kill Van Kull, Newark Bay and Arthur Kill channels and future deepening associated with 50 feet likely would begin also in this area. Consequently, the Port Authority entered into a \$145,000 contract with Boswell Engineering, South Hackensack, New Jersey, to research information, locate any evidence of crossings and create drawings illustrating its findings and analysis of utilities for this area. Boswell Engineering's efforts produced an electronic and hard copy library of drawings, maps, permits and other related documents that proved to be an invaluable resource to the Port Authority as well as the New York District. With this information in hand, the Port Authority took the next step in its program by hosting an initial meeting with potentially impacted utility companies in October 2000 to apprise them of the Port Authority's efforts to work with utility owners and to share in the cost of the work. The meeting was well received and representatives of the New York District as well as various agencies from the states of New York and New Jersey also attended. For those utilities that were unquestionably impacting the planned deepening work, the Port Authority followed up with working meetings with each utility to begin assembling a schedule of mutual tasks and milestones. In other instances where it was still uncertain if utilities required relocation, the Port Authority worked with the owners to identify if a problem existed. Ultimately, the Port Authority determined that it had to prioritize the relocation of utilities owned by The Coastal Corporation (El Paso Energy), ConocoPhillips and the Colonial Pipeline Company (Figure 4).

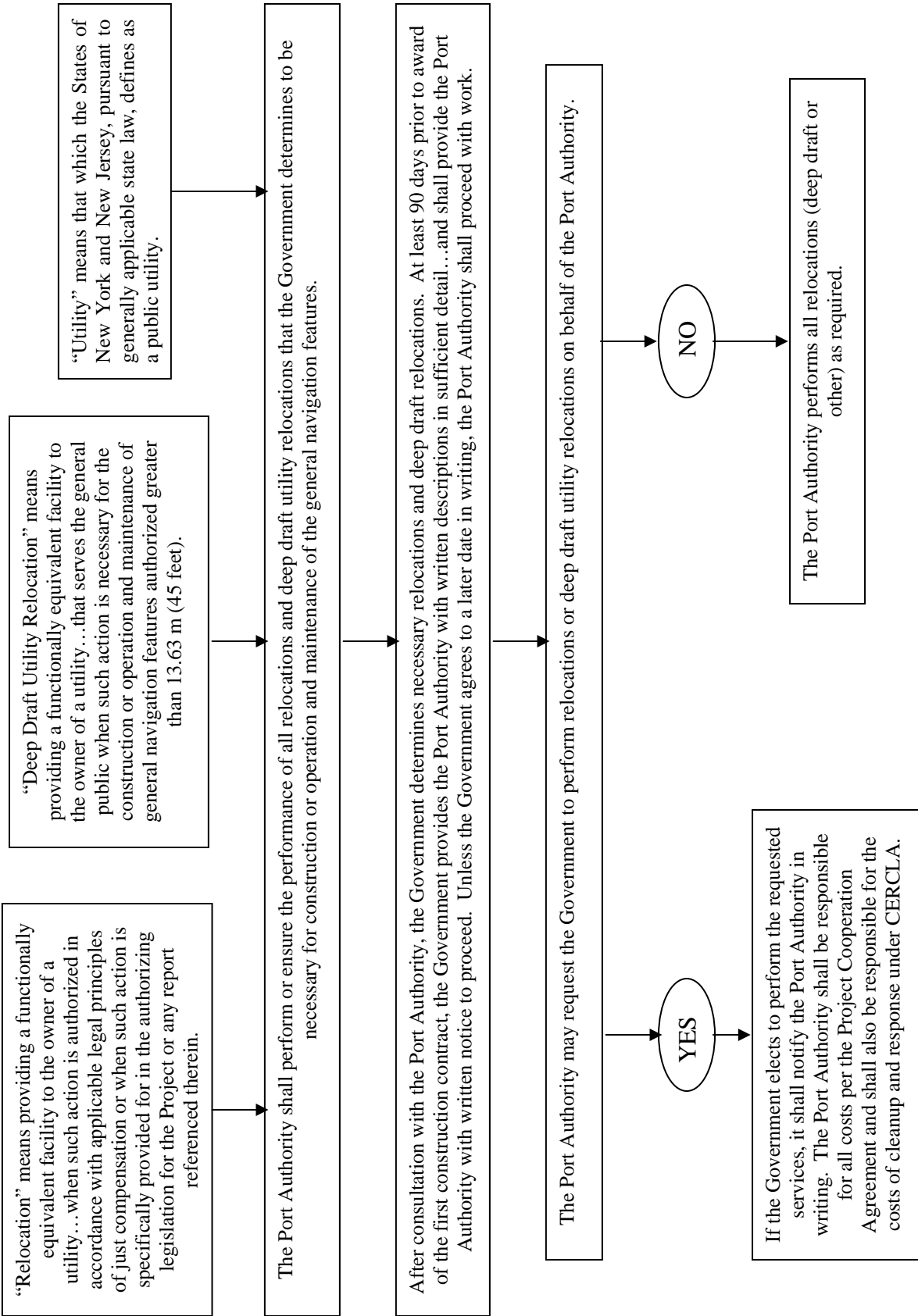


Figure 1. Utility Relocations – Responsibility Pathway

“Removal” means eliminating an obstruction where the Government determines that: (1) elimination is necessary for the construction or operation and maintenance of the general navigation features; (2) the Port Authority, the State of New York, the State of New Jersey or the Government has the legal capability to accomplish the elimination at the expense of the owner/operator; and (3) elimination is not part of a deep draft relocation. The term shall also mean elimination that is provided for in the authorizing legislation or any report referenced therein.

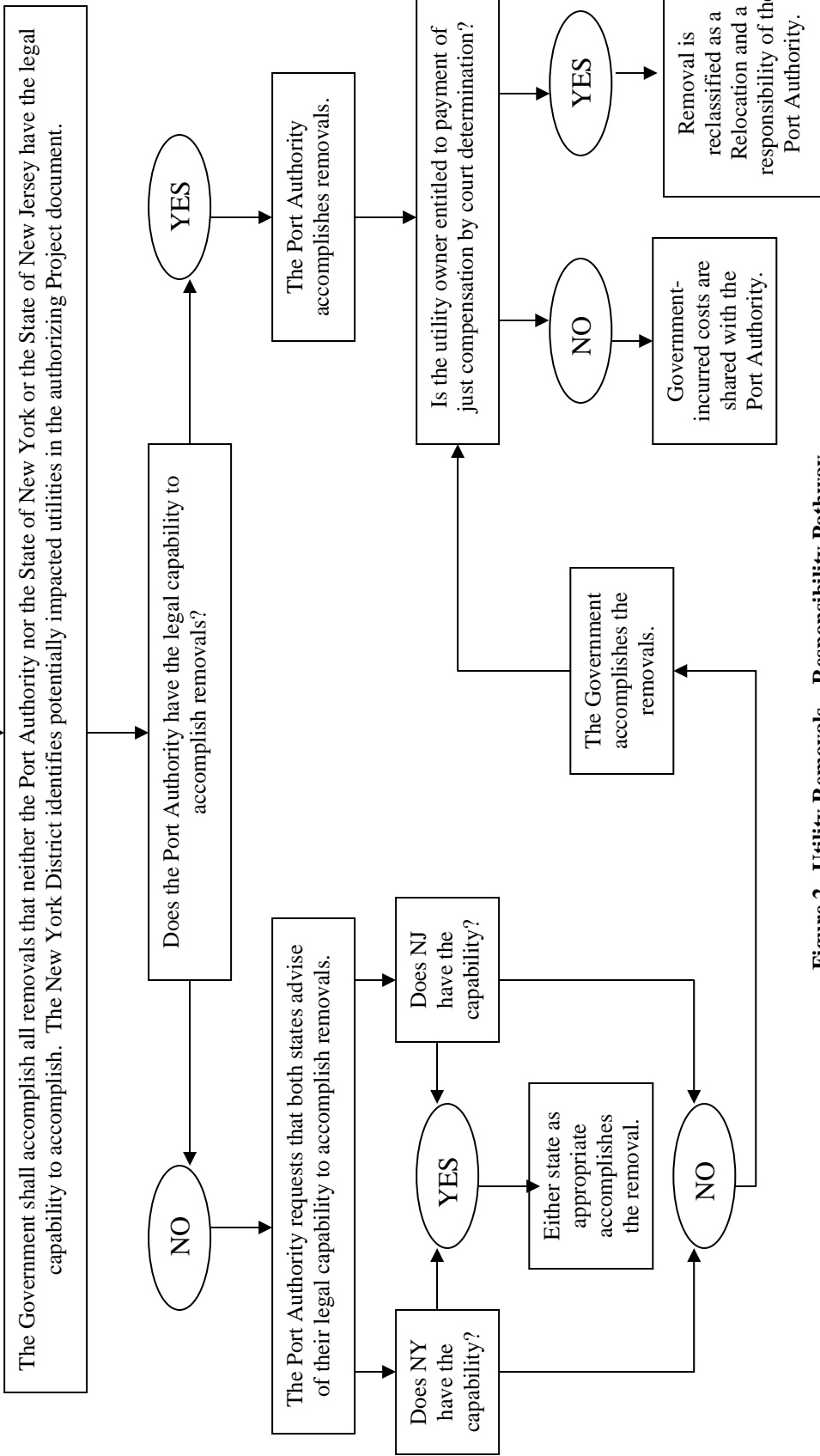


Figure 2. Utility Removals – Responsibility Pathway

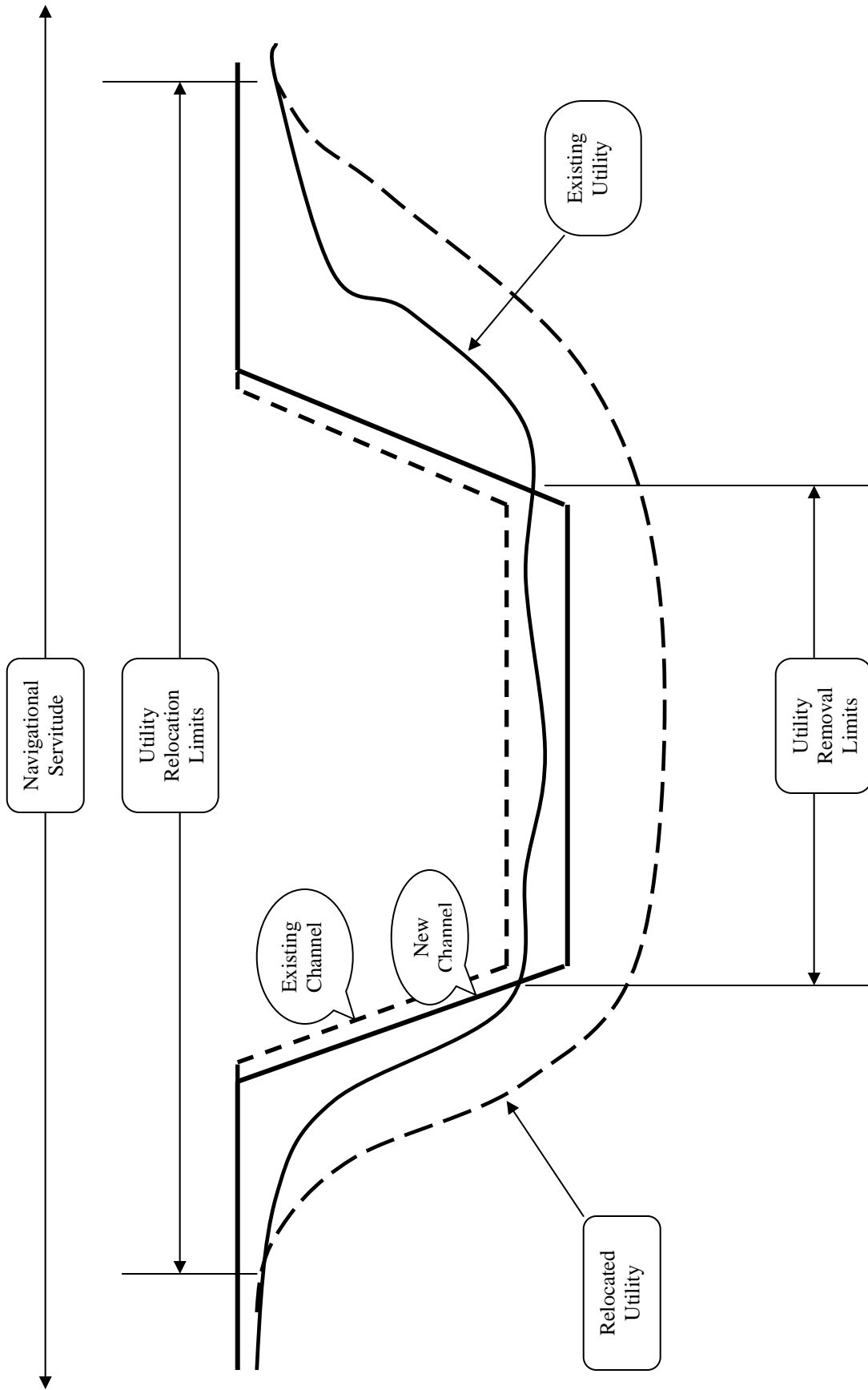


Figure 3. Relocation vs. Removal - Limits



Figure 4. Utility Relocations – Newark Bay and the Arthur Kill

The Coastal Corporation

Records indicate the New York District issued permits in 1943 to The Texas Pipeline Company to install a 0.3 m (12-inch) pipeline in Newark Bay and the Arthur Kill to transport petroleum products. In 1986, The Texas Pipeline Company sold the pipeline to the Coastal Pipeline Company (“Coastal”). In 1999 during very early coordination with the utilities, the Port Authority learned that Coastal and IMTT-Pipeline, a company originating in Bayonne, New Jersey jointly owned the 0.3 m (12-inch) line. Also in 1999, the New York District wrote to Coastal advising it of planned deepening work and that Coastal would be responsible for removing the pipeline as an obstacle to the deepening work. In September 1999, the New York District invited several utility owners including Coastal to a “cooperation conference” whereby the New York District provided attendees with an overview of planned deepening and advice on how utility owners could proceed to address relocation needs. There was no mention of cost sharing with the Port Authority at this time. In December 1999, Coastal advised the New York District that its pipeline was sufficiently below the existing channel bottom of the Arthur Kill and Newark Bay to preclude the need to lower the pipeline further to accommodate the planned deepening. The New York District, however, believed that Coastal had misinterpreted the information that the New York District had presented and requested that Coastal reconsider its position. Coastal did reverse its position, but then began to press the New York District and the Port Authority to cost share relocation work pursuant to the terms of WRDA 1986. The New York District responded to Coastal that cost-sharing issues needed to be a topic of discussion between Coastal and the Port Authority. The Port Authority agreed and as stated earlier made a business decision to work with Coastal to accomplish the relocation and split the cost of the relocation work.

Shortly after the Port Authority’s October 2000 initial meeting, Coastal began exploring ways to relocate its pipeline. [NOTE: Although jointly owned, IMTT-Pipeline basically deferred all relocation efforts to Coastal.] Concurrent with Coastal’s efforts and pursuant to a Port Authority request, Coastal made available a first draft of a cost sharing agreement. The agreement focused primarily on the rights and obligations of both parties and both parties agreed almost immediately that it would be most appropriate for Coastal to design, construct and fund the relocated pipeline with appropriate 50% reimbursement from the Port Authority thereafter. Areas of negotiation between both parties included but were not limited to a comprehensive definition of the work, work that Coastal may request the Port Authority to perform on its behalf, appropriate levels of review by either party during design, costs, schedule of payments, indemnification, assumed risks, insurance, access to records and dispute resolution. In March 2002, the Port Authority and Coastal signed an Agreement that governed the work that Coastal would perform.

As stated earlier, plans to begin construction to deepen channels in the Port to depths not less than 15.15 m (50 feet) were not advanced sufficiently at this time. Nevertheless, Coastal wanted to ensure that it would have to move its pipeline only once and so it planned to locate the new pipeline under the channels at a depth of approximately 27.27 m (90 feet). Material in the channel bottoms and adjacent areas of the Arthur Kill and Newark Bay ranged from soft silt to rock. Prior dredging experience determined that the silty material would be unsuitable for the cheaper and more desirable placement in the ocean. Additionally, the State resource agencies considered portions of these channel areas to be environmentally sensitive. All factors considered including the Corps’ schedule to dig the channels compelled Coastal to conclude that it would be most cost and time effective to place the new pipeline by directional drill as opposed to trenching. Working closely with New York District, State resource agencies, the Coast Guard and the Pilots, Coastal completed its design and started construction in early December 2002. Coastal’s contractor was US Pipeline, Inc.

Given that the New York District’ deepening of Newark Bay to 13.63 m (45 feet) had now advanced significantly compared to work in the Arthur Kill, Coastal started construction first in Newark Bay. The Newark Bay federal channel is 303 m (1,000 feet) wide where the pipeline crosses at an angle. To achieve the desired depth and make connections with Coastal’s existing pipelines on either side of the channel, US Pipeline drilled a pilot hole 1034.5 m (3,414 feet) under the channel. The first drill was only a pilot hole and so US Pipeline had to ream the pilot hole to its final diameter of 0.45 m (17.75 inches). While drilling, the contractor encountered fractured granite, mechanical equipment failures and inclement weather resulting in some delay. However, the contractor mobilized a second drill rig to regain the schedule. The eastern exit point was on land and the western exit point was in open shallow water. At a nearby location on Staten Island adjacent to the Arthur Kill, US Pipeline welded pipeline into two segments each 545.5 m (1,800 feet) long. These segments then were hydrotested, launched into the Arthur Kill and towed to shallow areas adjacent to the western exit point in open water. After pulling a first segment of pipeline into the hole, the contractor joined the second segment to the first and continued the pull until the entire pipeline exited on the eastern side. In late March 2003, the contractor completed the installation of new pipe under Newark Bay and

severed the old pipelines for removal. The severed isolated pipelines were cleaned and capped. Upon completion of drilling in Newark Bay, Coastal initiated efforts to drill under the Arthur Kill federal channel. US Pipeline mobilized its drill rig on Staten Island in January 2003 and completed a pilot hole 478.5 m (1,579 feet) long. The southern exit point was on land and northern exit point was in open water. In April 2003 after reaming the pilot hole, the contractor completed installation (land-based entry) of all pipelines and severed, cleaned and capped the old sections under the channel for eventual removal.

In June 2003, the New York District awarded a contract to Jay Cashman, Inc. to deepen the Newark Bay federal channel from 12.12 m (40 feet) to 13.63 m (45 feet). Since Coastal's pipeline was within the limits of the Jay Cashman deepening contract, Coastal hired Jay Cashman to remove the isolated abandoned pipeline. Many of the largest container ships entering the Port transit through this channel to the Port Authority's Port Newark and Elizabeth Port Authority Marine Terminal complex. Therefore, Coastal staged the contract by working in half the channel at one time in order to minimize disruptions to vessel movements and help ensure a maximum degree of safety to vessel operations. Taking advantage of Jay Cashman's contractual arrangements with both Coastal and the New York District, Coastal was able to coordinate extensively and advantageously with the Coast Guard's Vessel Traffic Center and with the Pilots to minimize problems and/or preclude problems from arising. Per guidance provided by the Port Authority, Coastal removed pipeline segments from 60.6 m (200 feet) on either side of the channel to allow for the anticipated construction limits of the future 15.15 m (50-foot) channel. Coastal completed removal work in Newark Bay in October 2003 and began removal work in the Arthur Kill shortly thereafter. The total estimated cost for relocating Coastal's pipeline was \$10.98 million.

ConocoPhillips

ConocoPhillips owns two 0.2 m (8-inch) pipelines and one 0.3 m (12-inch) pipeline that have not been functional for approximately the last fifteen years. These three pipelines run from Bayonne, New Jersey west across Newark Bay and south west across the Arthur Kill onto Staten Island where they continue to yet another crossing of the Arthur Kill into New Jersey further south. During this transit, the lines cross a federal channel three times. Two of the crossings represented obstacles to planned channel deepening.

Best information to date indicates that the New York District and/or New York and New Jersey issued permits to a predecessor company to install these three pipelines in 1919. Actual installation dates are unavailable for this paper. However, it appears that the current ownership of these pipelines evolved from companies named Tidewater Pipe Company, Tuscorora Oil Company, Esso, Exxon, Tosco Refining Company, Bayway Refining Company, Phillips Pipeline Company and Phillips 66 Company.

In June 1999, ConocoPhillips attended a notification meeting of potentially impacted utilities hosted by the Corps of Engineers. ConocoPhillips also participated in the Port Authority's October 2000 meeting. Approximately one year later, the Port Authority made available to ConocoPhillips a first draft of a cost sharing agreement. ConocoPhillips' three lines were inactive but not abandoned which the Port Authority believed place them in a gray area of being by definition neither a relocation nor a removal. The lines had to be removed because they were obstacles to the deepening work, but ConocoPhillips had no immediate plans to re-activate the lines in the foreseeable future. Must ConocoPhillips remove the pipelines at its cost or should ConocoPhillips relocate the pipelines for future use and share the cost of relocation with the Port Authority? During negotiations of the cost sharing agreement, answers emerged. The Port Authority proposed that it would split the cost of removal of the pipelines with ConocoPhillips as well as the cost of installation of new pipelines in the future with one condition - that ConocoPhillips complete the replacement of its pipelines in kind not later than December 31, 2007. By the end of 2002, the Port Authority and ConocoPhillips signed a cost sharing agreement that embraced many of the same conditions and stipulations negotiated with Coastal. Meanwhile, ConocoPhillips began to plan the removal of its pipelines.

The Kill Van Kull/Newark Bay 13.63 m (45-Foot) Deepening Project had progressed to the point where dredging in Newark Bay was imminent. Consequently, ConocoPhillips' priority was to remove its pipelines in Newark Bay before removing pipelines in the Arthur Kill. Initially, ConocoPhillips believed it would be most expeditious and cost effective for the New York District to remove the isolated abandoned sections of pipelines during the conduct of its channel deepening contract and so it made that request to the New York District through the Port Authority. The New York District agreed to the request stipulating that all costs would be a non-Federal responsibility, but potentially onerous conditions and requirements imposed by the New York District resulted in a decision by ConocoPhillips to remove the pipelines itself. By April 2003, ConocoPhillips finalized its plans and had obtained all necessary permits.

In June 2003, the New York District awarded a contract to Jay Cashman, Inc. to deepen the Newark Bay federal channel from 12.12 m (40 feet) to 13.63 m (45 feet). The contract encompassed the same critical channel area that included Coastal's pipeline. The contract staged the work by requiring that Jay Cashman work in and complete only one half of the channel at one time in order to minimize disruptions to vessel movements and help ensure a maximum degree of safety to vessel operations. The contract also identified the pipeline crossing area as a contract option that the New York District would award when ConocoPhillips three pipelines were isolated and cleaned. It was in the interest of both the Corps and the Port Authority that ConocoPhillips accomplish the removals before Jay Cashman completed work.

Initially, ConocoPhillips proposed yanking the lines out with brute force. However, that procedure was risky because the pipelines were covered with a stone armor and the aged condition of the pipelines could result in a breakage of the pipelines into many pieces. Additionally, yanking the pipelines could heave the stone armor thus compromising the navigability of the channel. To help minimize navigational impacts, ConocoPhillips acquired the services of Jay Cashman to help remove the pipelines. Ultimately, ConocoPhillips plan divided work into two phases. Phase One removed 12.12 m (40-foot) sections of pipeline first from the adjacent flats west of the channel then from the adjacent flats east of the channel. Removal of pipeline sections resting on the bottom west of the channel would disturb the bottom minimally or not at all. East of the channel, ConocoPhillips had to remove approximately five feet of overburden on the pipelines before pipeline removal. Since the overburden was untested and testing for upland placement would be unacceptably time consuming, the Port Authority with concurrence from the New Jersey Department of Environmental Protection ("NJDEP") agreed to accept the overburden for placement in its Newark Bay Confined Disposal Facility. Upon completion of Phase one, sections of pipeline in the channel bottom would be isolated and ready for removal during Phase Two. ConocoPhillips completed Phase One in mid-August 2003.

Phase Two required more extensive coordination especially with the New York District, Jay Cashman, the Coast Guard and the Pilots in order to ensure minimal impacts to navigation. There was approximately 560.6 m (1,850 feet) of 0.3 m (12-inch) pipeline and approximately 1287.9 m (4,250 feet) of 0.2 m (8-inch) pipeline (two lengths of 643.9 m (2,125 feet)) remaining in the channel bottom. Phase Two removal operations would be as follows: survey the lines using a subbottom profiler; ascertain three dimensional coordinates of the lines from the survey; remove overburden with the dredger moving on demand to accommodate ship transits; divers cutting the lines at channel midpoint. ConocoPhillips completed the Newark Bay removal work in October 2003.

During the Summer of 2003 while it was removing its pipelines from Newark Bay, ConocoPhillips was advancing its plans to remove pipelines from the Arthur Kill with the goal of beginning that work immediately upon completion of the Newark Bay work. Unlike the regulatory coordination required for the Newark Bay work that involved only the NJDEP, the Arthur Kill spanned the border between New York and New Jersey and so ConocoPhillips also had to coordinate with and obtain a permit from the New York State Department of Environmental Conservation ("NYSDEC"). ConocoPhillips' desire was to pursue a plan very similar to what it was accomplishing successfully in Newark Bay. However, the NYSDEC expressed concern with potential impacts to the tidal flats between Staten Island and the Arthur Kill federal channel. At one early point, ConocoPhillips believed it would have to remove or sidecast sediment to expose the pipelines, a practice that the NYSDEC does not consider favorably. However, ConocoPhillips eventually determined that the pipelines rested on the bottom and not in the bottom. The depth of water was very shallow at this location. After cutting the lines upland, ConocoPhillips was able to float its rig very close to the channel line, secure its position by anchor and not by spuds and lift and pull the pipeline segments from the flats. ConocoPhillips completed the removal of all pipeline segments from areas adjacent to the channel by January 2004. ConocoPhillips' cost for removing its pipelines was under \$2 million.

As stated earlier, ConocoPhillips intended to remove pipeline segments from the bottom of the Arthur Kill channel. However, during the course of its survey work to locate the pipelines, ConocoPhillips discovered that there were additional unknown pipelines very near or co-mingling with its pipelines. Uncertain of what these pipelines might contain, ConocoPhillips advised the Port Authority and the New York District that it would not remove its newly isolated pipeline segments from the Arthur Kill. This decision potentially threatened the New York District's schedule for completing the deepening of the Arthur Kill channel. However, ConocoPhillips made a recommendation, which the New York District embraced, that the New York District remove the mystery pipeline segments together with the ConocoPhillips remnants during the channel deepening.

Colonial Pipeline Company

Colonial Pipeline owns two active 0.35 m (14-inch) pipelines that cross the Arthur Kill between Elizabeth, New Jersey and Port Ivory, Staten Island. The Port Authority leases the Port Ivory property from the City of New York, who owns the land, and is developing this property both for the development of intermodal operations to complement the adjacent New York Container Terminal operations and for potential future expansion of container operations.

Both the New York District and the Port Authority initiated discussions regarding relocation with Colonial in a manner similar to that taken with Coastal and ConocoPhillips. Colonial also participated in the October 2000 Port Authority workshop. In January 2002, the Port Authority provided Colonial with a first draft of a comprehensive cost sharing agreement modeled after the agreement that the Port Authority was finalizing with Coastal. Initially, the Port Authority believed that coordination and construction methodology to relocate Colonial's pipelines would be fairly straightforward and similar to what Coastal accomplished. However, Colonial expressed concern with future Port Authority plans at Port Ivory and how this development would impact Colonial's relocated pipelines. Similar to what Coastal accomplished, Colonial was planning to relocate its pipelines at a depth of approximately 27.3 m (90 feet) via directional drilling through rock. At this depth, Colonial's pipelines clearly would be removed as an obstacle to planned channel deepening in the Arthur Kill first to 12.42 m (41 feet) and then to 15.15 m (50 feet). However, Colonial understandably desired to relocate its pipelines only once and where the pipelines emerged at Port Ivory to connect with Colonial's existing pipelines was an issue of significant concern to both the Port Authority and Colonial. Issues raised by Colonial to the Port Authority included protection of the pipelines from future container operations, access to the pipelines for emergency purposes, and construction of a future relieving platform (wharf) over the pipelines to receive container ships. Colonial has an easement with the Port Authority that basically requires Colonial to relocate its pipelines at its expense should the Port Authority require it to do so. However, after much consideration, the Port Authority determined that it would be most prudent not to invoke the easement requirements strictly and to address Colonial's concerns now rather than risk delaying the pipeline relocation work and jeopardizing the Corps schedule for deepening the Arthur Kill.

In the past three years, the Port Authority and Colonial have wrestled with a number of possible solutions to the above issues that hopefully would be satisfactory to both parties. Possible ideas have varied widely in scope and importance. Colonial considered routing its new pipelines completely around Port Authority property, but acquiring permits, new easements and spending considerably more money played havoc with the schedule and budgets. The Port Authority juggled the new exit point and tie-in location for the directional drill where in one instance it would impact minimally the future development of one parcel of property while potentially complicating the very imminent development of an adjacent property. Both parties considered changes to the existing easement, but ultimately the Port Authority's Board of Commissioners found any such changes to be unacceptable. Inadvertently, route change considerations also began to impact the exit point of the directional drill on the opposite side of the Arthur Kill in Elizabeth, New Jersey. Since Colonial's negotiations with the City of Elizabeth were sensitive politically, the Port Authority concluded that the already agreed exit point at that location should remain untouched.

The New York District began the long awaited channel deepening of the Arthur Kill federal channel in June 2003. In January 2005, the Corps awarded the second of a planned three contracts for this deepening to DonJon Marine, Inc. This second contract included the area where Colonial's pipelines crossed. Reacting to the urgency that Colonial must soon begin to relocate its pipelines, both the Port Authority and Colonial agreed soon thereafter on the final alignment and exit points. Presently, Colonial has submitted permit applications to the Corps and to the NJDEP and is purchasing materials in preparation for the start of relocation construction later this year. The estimated cost for relocating Colonial's two pipelines is \$8 million.

CORPS OF ENGINEERS EFFORTS

The New York District has concluded that removing clean and capped pipelines owned by others from the channels using its own resources will best serve Project interests. Removing abandoned utilities while deepening channels in the Port of New York and New Jersey has been of a very limited scope thus far. In early 2002, the Great Lakes Dredge & Dock Company under contract to the New York District to deepen a portion of the Kill Van Kull federal channel to 13.63 m (45 feet) removed eighteen abandoned communication cables owned by Verizon at a cost of \$121,000. The New York District assumed responsibility for all work. However, the District could not accept payment from Verizon directly and so in response to the District's request, the Port Authority entered into an agreement with Verizon whereby the Port Authority would act as a vehicle for Verizon to pay the New York District.

As the New York District continues to deepen the Arthur Kill federal channel to a depth of 12.42 m (41 feet) below Mean Low Water, it is finalizing bid documents that will remove and dispose of abandoned utilities (pipelines and communication lines) owned by ConocoPhillips, Verizon and others yet to be identified. Among other things, the bid documents will specify the means to search for, identify and remove the contents, if any, of the unknown pipelines. Payment to the New York District for removal of abandoned pipelines owned by ConocoPhillips has been arranged previously between the Port Authority and ConocoPhillips. The District will be removing one communication cable owned by Verizon at a cost of \$5,000. Verizon will pay the New York District as it did previously for removals performed in 2002. Where necessary, the New York District will attempt to identify owners and then seek to recoup costs incurred for removal and disposal from those owners. Once the utilities are removed, the Corps will direct DonJon to remove remaining and disturbed sediment from those areas in order to complete the deepening work in the channel.

FUTURE WORK

As stated previously, the Port Authority is sponsoring the New York District's Harbor Deepening Project, which will deepen a number of channels in the Port to 15.15 m (50 feet). Utilities serving various purposes and not already discussed above cross some of these channels and the New York District has identified some of these utilities as being likely obstacles to the proposed deepening work and has advised the Port Authority accordingly. Similar to efforts that it undertook around Bergen Point, the Port Authority hired B-L Companies, New York, NY at a cost of \$160,000 to perform a detailed survey of these channel areas verifying the Corps findings, to identify other utilities that potentially may impact channel deepening and to acquire more detailed information of all utilities (Figure 5). At this time, the Port Authority has re-affirmed the Corps findings and preliminarily concluded that no other utilities exist as obstacles to the deepening work. The Port Authority presently is coordinating with: (a) the City of New York Department of Environmental Protection to relocate two long existing auxiliary water lines that run between Brooklyn and Staten Island; (b) Williams Transco to relocate a gas line that crosses the Ambrose Channel; and (c) Public Service Electric & Gas to relocate a gas line that runs between Elizabeth, New Jersey and Bayonne, New Jersey. The Port Authority will work with the New York District to ensure that relocations continue to advance ahead of the District's schedule for deepening the channels to 15.15 m (50 feet).

CONCLUSIONS

The planning and coordination required to relocate utilities so that they do not remain as obstructions to channel deepening and maintenance is a formidable process that can be easily underestimated. It is easy to assume that impacted utilities will agree to move their utilities with little difficulty simply because they are in the way of a federal project or because they are in a particular location by permission of the federal government. However, the reality is that plans and schedules to deepen channels cannot ignore or take lightly the needs of the businesses that operate impacted utilities. Similar to how the Corps of Engineers works years in advance to address the needs of its sponsors who are its customers, the sponsors must work to address the needs of the impacted utility owners and operators. In doing so, project sponsors should recognize that they need to be creative and be willing to assume some risk. The Port Authority of New York & New Jersey had the foresight to coordinate with utility owners well in advance of planned channel deepening construction. This coordination has not been problem-free and it has been complicated, but it also has been successful to date. Much work remains to be done to ensure that channels do not impact utilities and utilities do not impact channels.

ACKNOWLEDGEMENT

The author gratefully acknowledges the assistance provided by Harold J. Hawkins and Steven R. Weinberg of the New York District, Corps of Engineers and David McGrath of The Port Authority of New York & New Jersey.

REFERENCES

- United States Army Corps of Engineers Policy Guidance Letters No. 8 (19 May 1988) entitled "Projects – Responsibility for Utility Relocations on Harbor Projects" and No. 9 (13 June 1988) entitled "New Start Construction Projects – Responsibility for Relocation and Removal of Structures and Facilities on Navigation Projects"
- United States Army Corps of Engineers Policy Guidance Letters No. 15 (7 April 1989) entitled "Credit for Utility Relocation Costs on Navigation Projects – Modification to Existing Local Cooperation Agreements (LCA's)" and No. 44 (20 Oct 1995) entitled "Relocations and Removals at Navigation (Harbor) Projects".

